1994

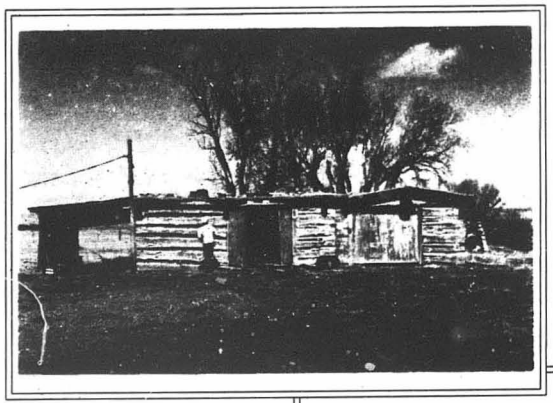
# Questar Pipeline Company, Environmental Assessment for the Birch Creek Natural Gas Pipeline

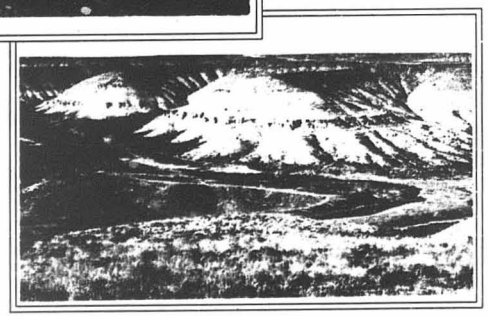
United States Department of the Interior Bureau of Land Management

**U.S. Department of the Interior**
Bureau of Land Management
Rock Springs District Office

Green River, Pinedale, and Kemmerer Resource Areas — June 1994

# Questar Pipeline Company, Environmental Assessment for the Birch Creek Natural Gas Pipeline







The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that take into account the long term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific and cultural values.

BLM/WY/ES-94/019+4110

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Rock Springs District Office
P.O. Box 1869
Rock Springs, Wyoming 82902-1869

1792 (420)
Birch Creek

June 24, 1994

Dear Reader:

Enclosed is the environmental assessment for Questar Pipeline Company's proposed Birch Creek gathering lateral pipeline system for your review and comment. All comments must be received no later than July 25, 1994. Please send your comments to:

District Manager
Bureau of Land Management
P.O. Box 1869
Rock Springs, WY 82902

Your comments will be evaluated and fully considered prior to making a finding of either no significant impact or significant impact. Should a finding of no significant impact be made, the BLM will issue a decision record.

The BLM encourages and appreciates your comments. If you have any questions, please call Teri Deakins, Rock Springs District Office, at (307) 382-5350.

Sincerely,

Associate District Manager



**QUESTAR PIPELINE COMPANY,
ENVIRONMENTAL ASSESSMENT FOR THE
BIRCH CREEK NATURAL GAS PIPELINE**

Prepared for

**Bureau of Land Management
Rock Springs District
Green River Resource Area
Pinedale Resource Area
Kemmerer Resource Area**

**June 1994**

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## 1.0 PURPOSE AND NEED

### 1.1 INTRODUCTION

Questar Pipeline Company (Questar) is a natural gas pipeline transportation company that operates more than 2,400 miles of transmission and gathering pipelines in northwestern Colorado, southwestern Wyoming, and northern and central Utah and who, through its interconnections with other major pipelines, provides customers with gas gathering, transportation, and storage services. Questar has applied to the Bureau of Land Management (BLM), Rock Springs District, for approval to construct the Birch Creek Pipeline in southwestern Sublette County, eastern Lincoln County, and northwestern Sweetwater County, Wyoming (Figure 1.1). The proposed pipeline would be a gathering line for existing and future natural gas fields in the area, and would extend from the end point of Questar's existing Jurisdictional Lateral No. 35 in Sweetwater County north to the Saddle Ridge area northwest of La Barge. Construction would begin September 1, 1994 and would be completed by November 1, 1994, or as soon thereafter as practicable. The proposed right-of-way (ROW) was chosen because it would be the shortest, most practical route for gathering natural gas from existing and anticipated production areas, and because it would parallel existing pipeline ROWs for much of its length to minimize environmental impacts.

### 1.2 CONFORMANCE AND AUTHORIZING ACTIONS

ROWs for natural gas pipelines are issued under authority of the *Mineral Leasing Act of 1920,* the *Mineral Leasing Act for Acquired Lands*, the *Federal Land Policy and Management Act of 1976*, as amended, and the *Federal Onshore Oil and Gas Leasing Reform Act of 1988.* More detailed policies for development and land use decisions are contained in the Big Sandy Management Framework Plan (MFP) (BLM 1982), the Green River Resource Management Plan (RMP) and Draft Environmental Impact Statement (EIS) (BLM 1992),



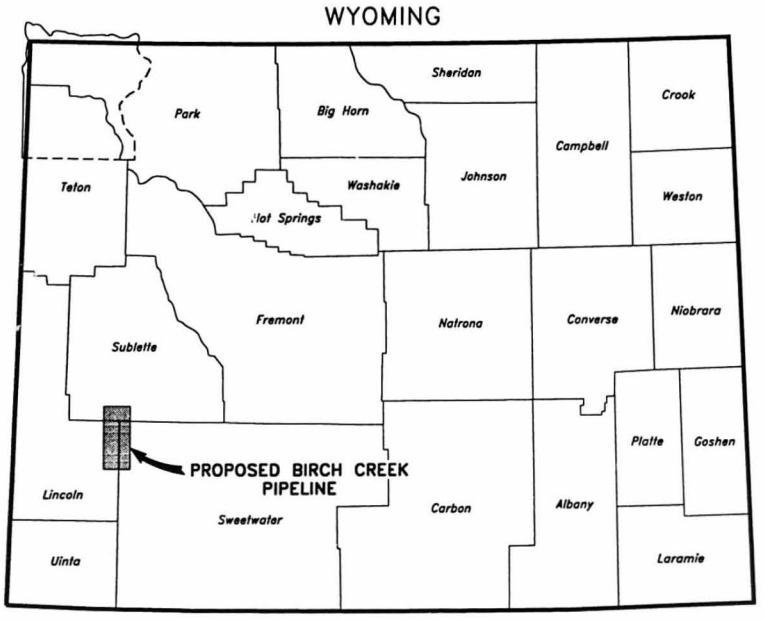


Figure 1.1 General Location of Proposed Birch Creek Pipeline.

the Kemmerer RMP (BLM 1986a), the Pinedale RMP (BLM 1988a), and the Big Piney-La Barge Coordinated Activity Plan (CAP) (BLM 1991). All of these documents recognize oil and natural gas development as a legitimate use of BLM lands. The proposed action and alternatives would be in conformance with these land use plans. No amendments to the MFP, CAP, or RMPs would be necessary to implement the proposed action. In addition, the pipeline would affect but be consistent with the following project areas:

- Exxon's Shute Creek sour gas pipeline (Exxon Riley Ridge Natural Gas Project, Record of Decision, January 1994).
- Basin Operating Company's Bird Canyon project area (Basin Operating Company, Bird Canyon Project, Supplemental Environmental Assessment, Finding of No Significant Impact, Decision Record, June 1993).
- Enron's East LaBarge project area (Enron Oil & Gas Company East LaBarge Infill Drilling Project, Environmental Assessment, Finding of No Significant Impact, Decision Record, May 1992).
- PG&E Resource Company's Fontenelle Unit project area (PG&E Resources Company's Fontenelle Unit Infill Drilling Program Environmental Assessment, Finding of No Significant Impact, Decision Record, July 1991).
- Texaco and Washington Energy's project area (Supplemental Environmental Assessment, Finding of No Significant Impact, Decision Record for Texaco Exploration and Production Inc. and Washington Energy Resources Infill Drilling Projects, September 1992).

This environmental assessment (EA) was prepared in accordance with the *National Environmental Policy Act of 1969* (NEPA) and is in compliance with all applicable regulations and laws passed subsequently, including Council of Environmental Quality regulations (40 CFR 1500-1508), USDI requirements (*Department Manual 516, Environmental Quality*), and guidelines listed in the BLM *Manual Handbook, H-1790-1*. This EA assesses the environmental impacts of the proposed action and reasonable alternatives, including No Action, and will serve to guide the decision making process.



The proposed action would comply with all relevant federal, state, and local laws, as well as county use plans in the three affected counties. Table 1.1 lists all authorizing actions required for project compliance.

## 1.3 ISSUES AND CONCERNS

A scoping statement was mailed to approximately 80 government offices, elected officials, public land users and groups, newspapers, and radio and TV stations describing the project and requesting comments. Thirteen comment letters and telephone calls were received. Issues and concerns identified by the public, BLM, and other government agencies that are analyzed in this EIS include:

- Water quality and aquatic resources, especially in Birch Creek and the Green River.
- Impacts to the Green River riparian corridor.
- Impacts to wetlands.
- Threatened, endangered, and candidate animal and plant species.
- Construction in steep canyons.
- Revegetation and restoration of short-term disturbance and long-term stabilization, and control of noxious weeds.
- Potential conflicts with livestock and range improvements.
- Social and economic affects on local communities.
- Cumulative impacts from this and other energy-related activities in the area.
- Potential impacts to the proposed Little Colorado Wild Horse Herd Management Area.
- Big game crucial winter habitat, including cumulative impacts.
- Reclamation potential of soils.
- Cultural resources.
- Impacts to Seedskadee National Wildlife Refuge.
- Impacts to the Sublette Cutoff of the Oregon Trail.

Table 1.1 Federal, State, and County Agencies and Authorizing Actions.

| Agency | Nature of Action |
|---|---|
| COUNTY OFFICES | Zoning certificate for site development and construction |
| | Small wastewater system permits, where applicable |
| | Road use agreements and/or oversize trip permits, when traffic on county roads exceeds established size and weight limits or where the potential for excessive road damage exists |
| | Conditional use permits for all new structures and/or work camps |
| | Filing fees |
| | Control of noxious weeds |
| | Permit to bore or trench roads |
| U.S. DEPARTMENT OF THE ARMY | |
| U.S. Army Corps of Engineers (ACE), Omaha District | Section 404 permits as necessary for compliance with the *Clean Water Act* |
| | Coordination with ACE regarding all necessary placement of dredged or fill material in area waters and their adjacent wetlands, as specified in 40 CFR Part 230 |
| U.S. DEPARTMENT OF THE INTERIOR | |
| Bureau of Land Management (Rock Springs District) Green River Resource Area | NEPA compliance approval of right-of-way application for pipelines; temporary use permits |
| U.S. Fish and Wildlife Service | Review of impact on federally listed threatened, endangered, and candidate species of fish, wildlife, and plants |



Table 1.1 (Continued)

| Agency | Nature of Action |
|---|---|
| U.S. DEPARTMENT OF TRANSPORTATION | Conformance with regulations for pipelines (49 CFR Parts 191 and 192) |
| U.S. ENVIRONMENTAL PROTECTION AGENCY | Resource Conservation and Recovery Act permit for treatment, storage, or disposal of hazardous waste |
| WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY | |
| Water Quality Division | Approval of stormwater discharge (402 permit) |
| | Conformance with all surface water standards |
| WYOMING DEPARTMENT OF TRANSPORTATION | Conformance with applicable size and weight limits for trucks |
| | Permits for boring under roads |
| WYOMING STATE HISTORIC PRESERVATION OFFICE | Consultation for cultural resource inventory, evaluation, and mitigation |

- Impacts to existing pipelines and utility routes.
- Impacts due to housing shortage in Sweetwater County.
- Impacts from work camps.
- Need to utilize existing pipeline and road corridors whenever possible.
- Visual resource protection along Green River corridor.
- Recreational access to Green River corridor.
- Need for another pipeline in the vicinity.
- Potential impacts to sage grouse breeding and nesting habitat.
- Potential impacts to raptor nesting habitat.



## 2.0 THE PROPOSED ACTION AND ALTERNATIVES

### 2.1 THE PROPOSED ACTION

Questar proposes to construct the Birch Creek Pipeline, a gathering line consisting of a 12 3/4 inch outside diameter (O.D.) and a 8 5/8 inch O.D. buried natural gas pipeline that would extend from the existing end point of Questar's Jurisdictional Lateral No. 35 in the NE¼ Section 33, Township 23 North, Range 111 West, Sweetwater County, Wyoming, to a termination point in the NE¼ Section 5, Township 27 North, Range 113 West, Sublette County, Wyoming (Figure 2.1). The proposed natural gas gathering pipeline would allow Questar to collect gas from existing and proposed producing areas in northwestern Sweetwater County, northeastern Lincoln County and southwestern Sublette County, and would be designed to receive gas from Chevron's Birch Creek Compressor Station.

The total length of the natural gas pipeline would be approximately 208,760 ft (39.5 mi) of which 189,460 ft (35.9 mi) would cross federal lands, 16,650 ft (3.2 mi) would cross State of Wyoming lands, and 2,650 ft (0.5 mi) would cross private lands (Table 2.1). The proposed pipeline would be 12 3/4 inch O.D. from its southern end to its transition point approximately 33.3 mi to the north in Section 13, Township 27 North, Range 113 West. The remaining 6.2 mi of the pipeline would be 8 5/8 inch O.D. A 100 ft by 150 ft parcel would be required at the size transition point for above-ground piping, meter, and ball launcher facilities.

An above-ground block valve parcel (50 foot x 50 foot) would be located in the SE¼ Section 17, Township 25 North, Range 111 West, Lincoln County, Wyoming. A 75 ft by 100 ft parcel would be required at the north termination of the pipeline for a prefabricated metal meter building, above-ground piping, and ball launcher facilities in the NE¼ Section 5, Township 27 North, Range 113 West, Sublette County, Wyoming. These facilities would be fenced for security with a 7 ft high chain link fence.

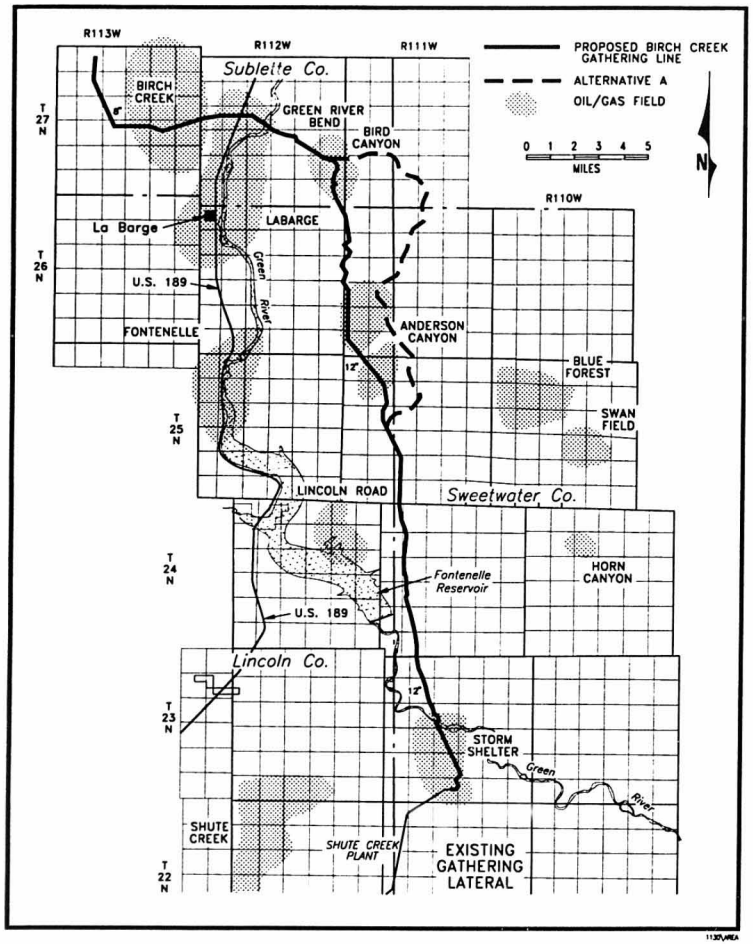


**Figure 2.1** Proposed Right-of-Way for Birch Creek Pipeline.



Table 2.1 Surface Ownership Along the Proposed Birch Creek Pipeline Route.

| Surface Ownership | Length | | Percent of Total |
|---|---|---|---|
| | Feet | Miles | |
| U.S. | 189,460 | 35.9 | 91 |
| State of Wyoming | 16,650 | 3.2 | 8 |
| Private | 2,650 | 0.5 | 1 |
| Total | 208,760 | 39.6 | 100 |

Five single staging areas and five pairs of staging areas (a total of 15 staging areas) would be required, primarily for the Green River and road crossings, and for each end of the proposed pipeline. A diagrammatic representation of the proposed pipeline route, showing land ownership, parallel pipelines, and the location of staging areas and prominent features is presented in Figure 2.2. The total area of disturbance for the 15 staging areas would be 7.2 acres, and for the three other areas of surface disturbance (block valve, pipe size transition point, and north terminus), 0.6 acres, for a total of 7.8 acres.

A permanent pipeline ROW width of 50 ft would be required for operations and maintenance purposes. Construction would require a 70 ft wide ROW, with the additional 20 ft width covered under a temporary use permit included with the ROW grant (Figure 2.3). In addition, a 120 ft ROW would be needed in certain areas, especially along side hills requiring areas of cut and fill (Figures 2.2 and 2.4).

Approximately 29,000 ft (5.5 mi) of the proposed pipeline would require a 120 ft ROW for construction and 50 ft for operation and maintenance, with the remainder (34.05 mi) requiring 70 ft for construction and 50 ft for operations and maintenance. Total surface disturbance for the proposed pipeline ROW would be 368.8 acres (Table 2.2) plus the

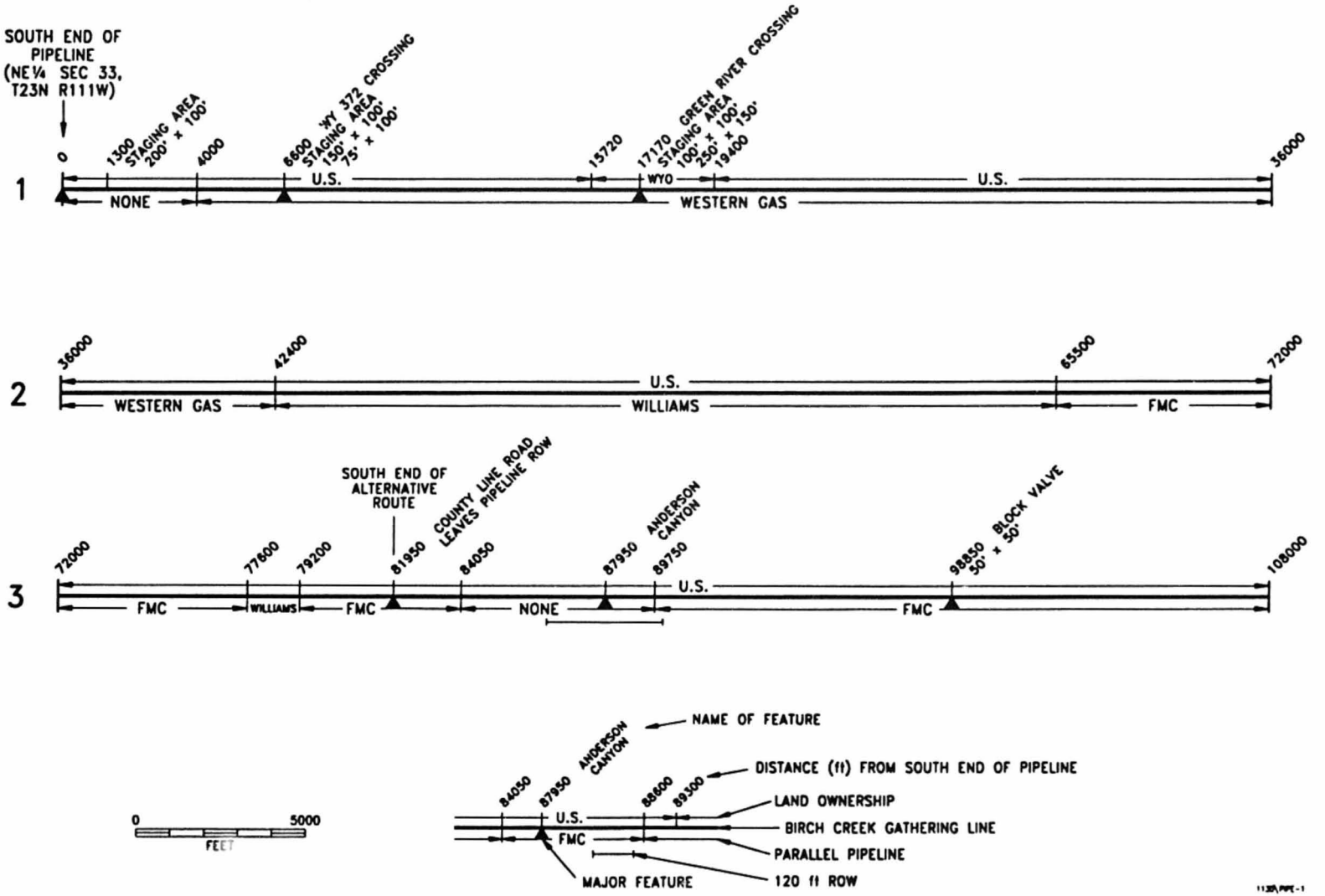


Figure 2.2 Diagrammatic Representation of Proposed Birch Creek Pipeline Showing Surface Ownership, Parallel Pipelines, Staging Areas, and Prominent Features.

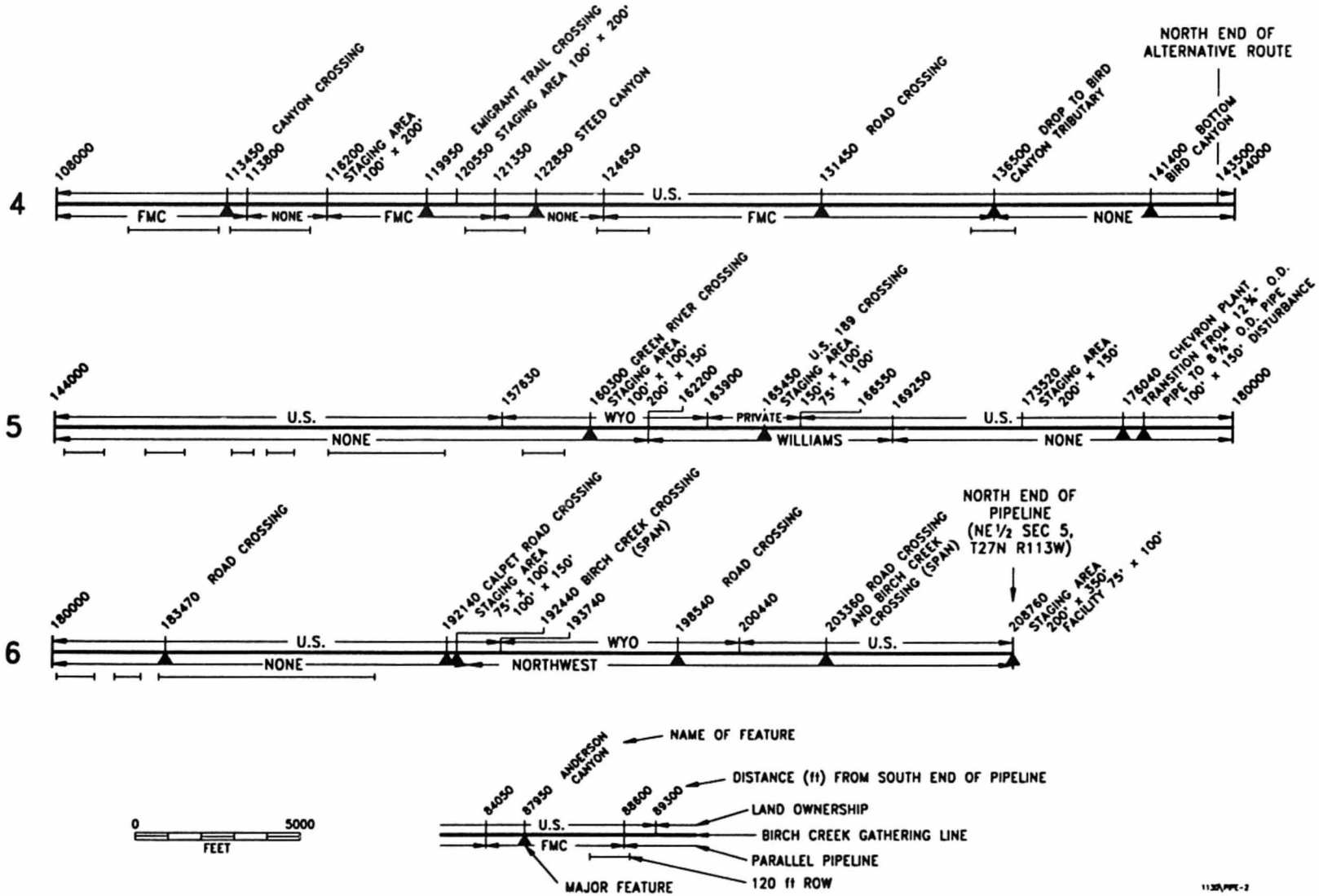


Figure 2.2 Diagrammatic Representation of Proposed Birch Creek Pipeline Showing Surface Ownership, Parallel Pipelines, Staging Areas, and Prominent Features (Continued).



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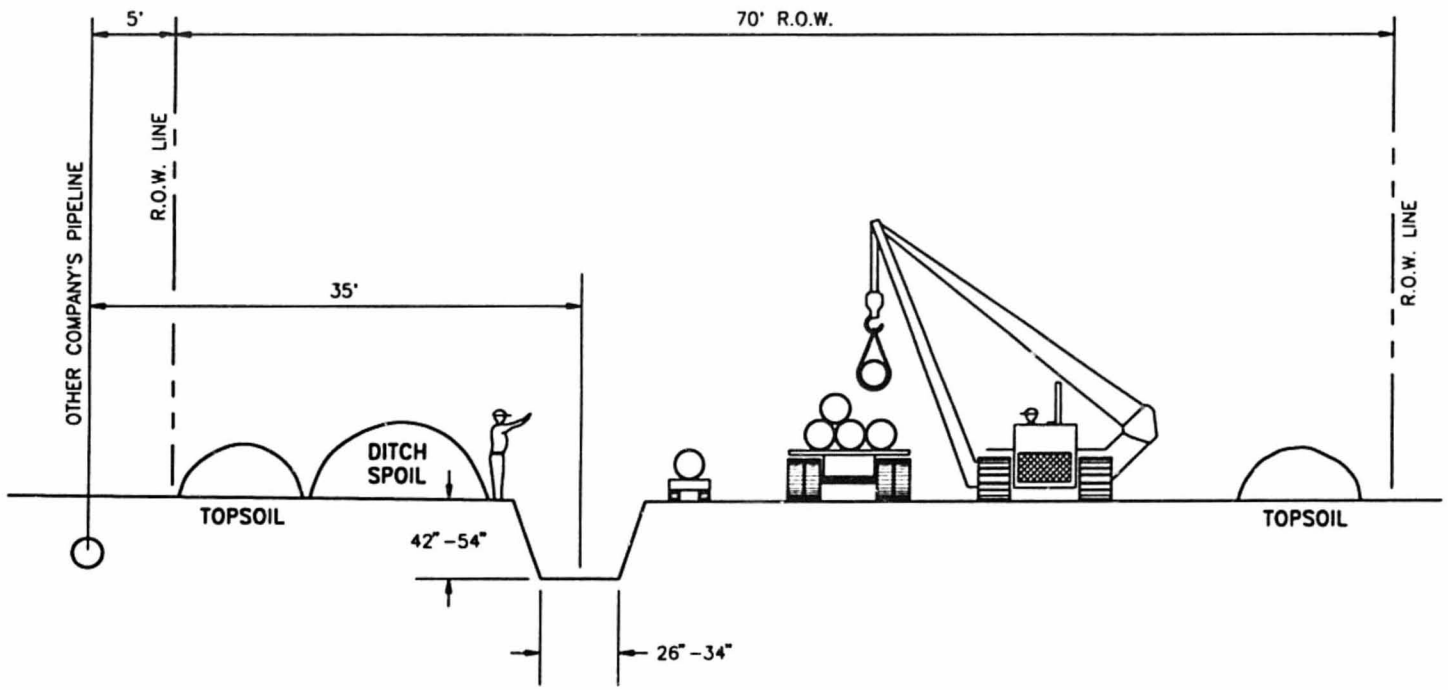


TYPICAL CROSS SECTION OF PIPELINE RIGHT-OF-WAY ON LEVEL GROUND OR DOWN FACE OF SLOPE AND PARALLEL WITH ANOTHER PIPELINE

NOT TO SCALE

Figure 2.3 Typical 70 ft ROW Construction Cross Section.

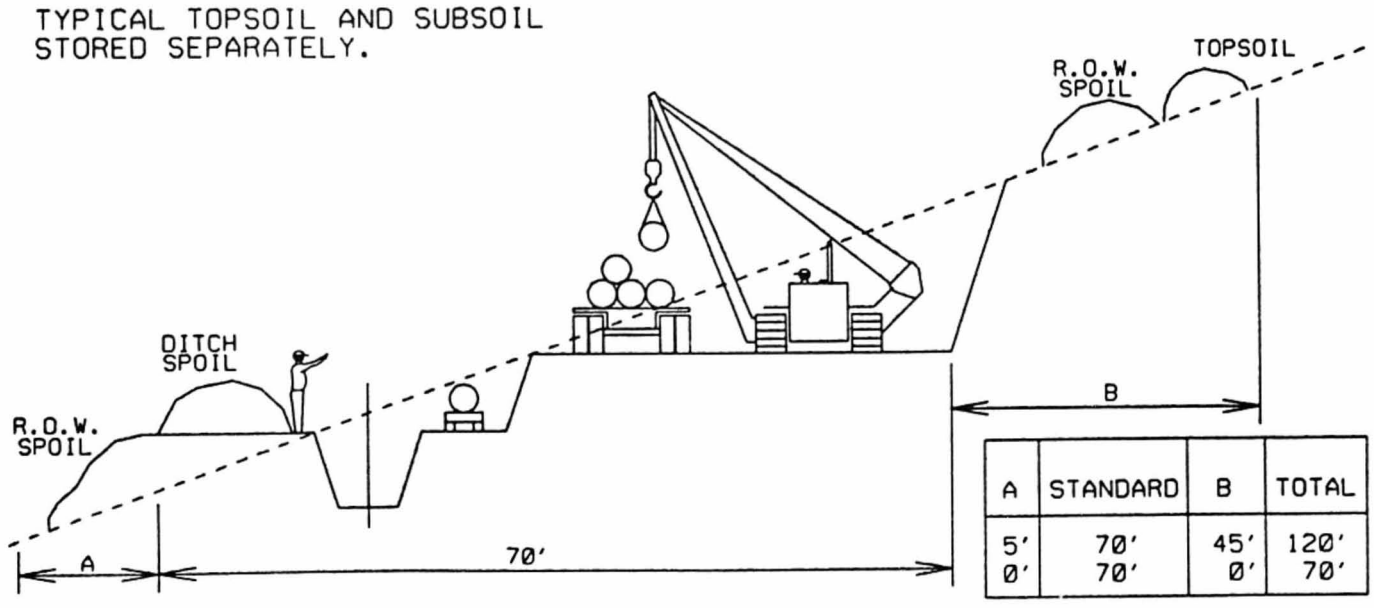


Figure 2.4 Typical 120 ft ROW Construction Cross Section.



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7.8 acres for staging areas and facilities--a total of 376.6 acres. The permanent 50 ft ROW would occupy 239.6 acres for the life of the project.

The Proposed Action would traverse the following natural gas project areas:

- Approximately 3 mi of pipeline would be located adjacent to Exxon's Shute Creek sour gas pipeline (Exxon Riley Ridge Natural Gas Project, Record of Decision, January 1994).
- Approximately 4 mi would be within Basin Operating Company's Bird Canyon project area (Basin Operating Company, Bird Canyon Project, Supplemental Environmental Assessment, Finding of No Significant Impact, Decision Record, June 1993).
- Approximately 1 mi would be within Enron's East LaBarge project area (Enron Oil & Gas Company East Labarge Infill Drilling Project, Environmental Assessment, Finding of No Significant Impact, Decision Record, May 1992).
- Approximately 4 mi would be within PG&E Resource Company's Fontenelle Unit project area (PG&E Resources Company's Fontenelle Unit Infill Drilling Program Environmental Assessment, Finding of No significant Impact, Decision Record, July 1991).
- Approximately 9 mi would be within Texaco and Washington Energy's project area (Supplemental Environmental Assessment, Finding of No Significant Impact, Decision Record for Texaco Exploration and Production Inc. and Washington Energy Resources Infill Drilling Projects, September 1992).

No new roads would be constructed, nor would any blading of existing roads be necessary. Only existing roads and the pipeline ROW would be used for access. Approvals would be obtained from BLM, private landowners, counties, and the State of Wyoming for the use of existing roads during construction. Roads would be rehabilitated to preconstruction



Table 2.2 ROW Surface Disturbance From Proposed Action.

| ROW Width (ft) | Surface Disturbance | |
|---|---|---|
| | Linear Feet | Acres |
| 70 | 179,760 | 288.9 |
| 120 | 29,000 | 79.9 |
| Total | 208,760 | 368.8 |

conditions, if necessary, after pipeline construction activities are complete unless otherwise specified by the landowner.

Total cost of the proposed project is estimated at $5,188,000, with approximately $1,830,000 for materials, $1,983,000 for contract work, and the remaining $1,370,000 in internal costs to Questar.

The design, materials, construction, operation, maintenance, and abandonment of the proposed pipeline would be in accordance with American National Standards Institute (ANSI) B31.8 (*Gas Transmission and Distribution Piping Systems*), American Petroleum Institute Standard 1104, and safe and proven engineering practices. State-of-the-art design, materials and construction techniques would be employed to ensure that the pipeline would be operated safely and with minimal risk to the environment.

### 2.1.1 Pipeline Design

The proposed pipeline would be designed for a maximum allowable operating pressure (MAOP) of 1,192 pounds per square inch gauge (psig) from the Birch Creek Compressor Station to Questar's JL No. 35. The pipeline would consist of 12 3/4 inch O.D., X-52 steel

pipe with a 0.203 inch wall thickness and 8 5/8 inch O.D., X-42 steel pipe with a 0.188 inch wall thickness.

All pipeline plans and specifications along with alignment maps, utility and road profiles, cross sections, site specific details, and design drawings associated with the project will be available for review at the BLM's Rock Springs District Office and Resource Area offices in Green River, Pinedale, and Kemmerer. ROW drawings and legal descriptions prepared for private and state lands would also be available.

The centerline of the pipeline ROW, as well as the exterior limits of the ROW, would be flagged by Questar field engineers. Color schemes used in flagging the pipeline corridor would be: pink for centerline of pipeline; yellow for outer limits of ROW; green for archaeological areas; white for other environmental avoidance areas; red for U.S. Geological Survey section corners; and red and white for Questar control points.

### 2.1.2 Construction

Questar would notify BLM's Authorized Officer (AO), and all private surface owners, five days in advance of starting any construction activities.

Construction of the proposed pipeline would occur in a planned sequence of operations along the ROW (Figure 2.5). A 70 ft construction corridor would be cleared of above ground vegetation and obstacles, with surface disturbance limited to that required to ensure a safe work area for equipment and workers. Topsoil would be separated by means of windrowing or sidecasting. A minimum of the first 6 inches of topsoil would be saved along the edges of the bladed ROW. Additional topsoil may be saved if reclamation indicates a need.

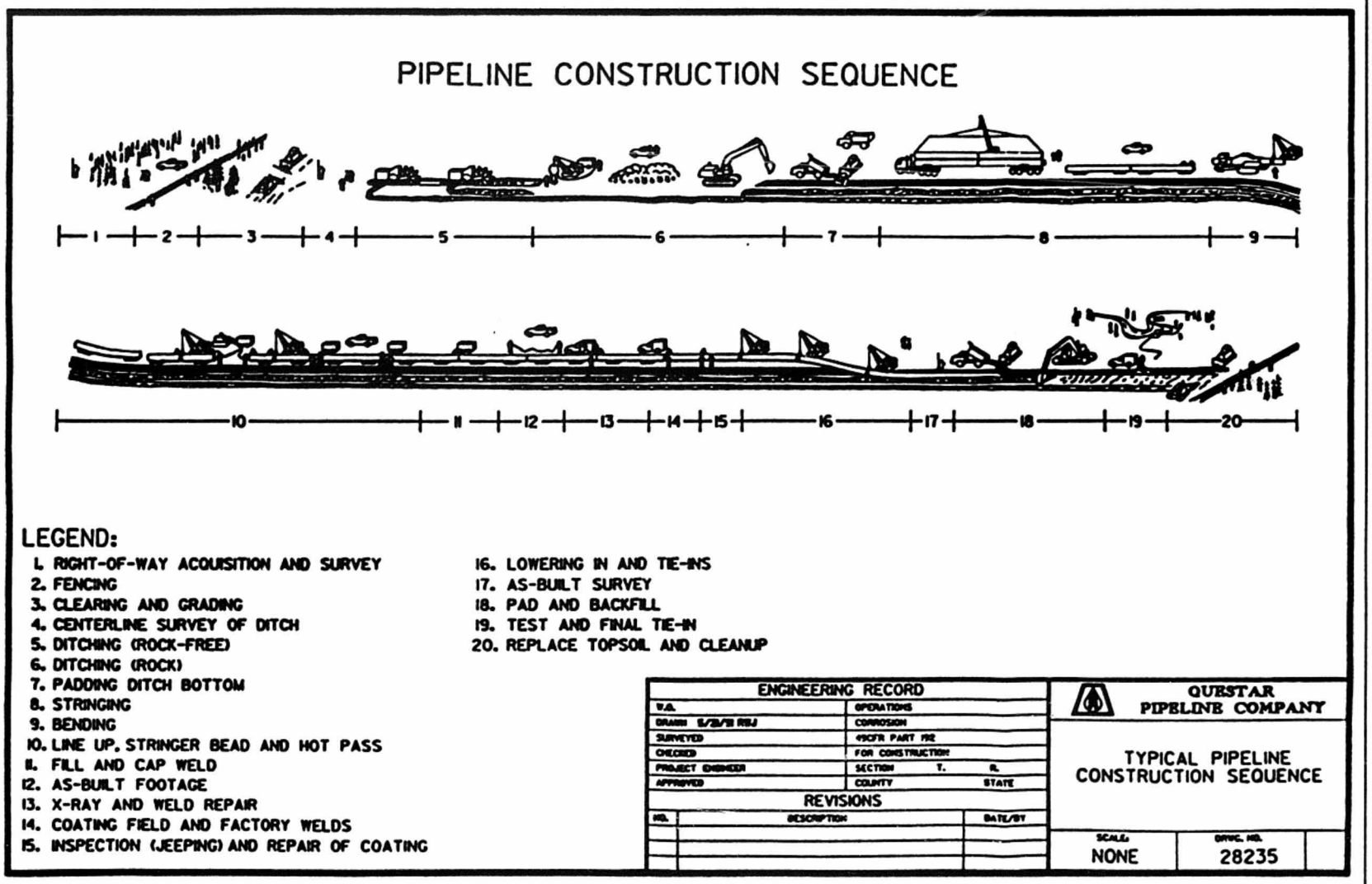


Figure 2.5 Typical Pipeline Construction Sequence.

After the ROW has been cleared and graded, trenching would begin. The trench would be 34 inches wide with 30 inches minimum cover over the pipe and centered on the flagged survey line 35-45 ft from the edge of the ROW. The trench would be excavated mechanically with a backhoe or ditching machine and spoil would be windrowed along one side of the trench. Spoil from the trench would be kept separate from topsoil. Gaps in the trench would be spaced at various intervals to allow for the passage of vehicles, livestock, and wildlife. Questar would inspect any open trenches daily to check for livestock or wildlife that could be trapped, and would notify appropriate livestock permittees when trenching would be done on their allotment.

All construction materials would be hauled to the job by truck and stored at staging areas as needed or strung along the ROW. Pipe would be stored in a manner to minimize interference with existing land uses.

Once the pipe has been strung and lined up, a bending machine would be used to bend the pipe in horizontal and vertical planes to fit the ditch. After bending, sections of pipe would be lined and welded together in compliance with industry standards. Following welding, the pipe would be coated, the coating checked for integrity, and the pipe lowered into the ditch. The ditch would be padded with sand or soil as required in rocky areas prior to pipe placement. This would be accomplished using a ditch padding machine. After pipe placement, padding and backfilling operations would commence. Spoil would be replaced in the ditch, and the ROW would be scarified, graded, and contoured to preconstruction conditions. Topsoil would then be spread evenly over the disturbed area. Any excavated material that cannot be placed in the trench would be properly disposed of in conformance with applicable regulations and landowner or jurisdictional agency requirements. When possible, these surplus materials would be spread over the ROW.



No material/borrow sites are anticipated for the construction of the pipeline. Water for dust control would be purchased from an authorized local water supplier using an approved water source.

After pipeline construction is completed, pipeline markers would be installed at line-of-site intervals and road crossings to identify the pipe's location within the ROW.

The pipeline would be pressure-tested with gas (nitrogen, natural gas, or air) to ensure its integrity. This procedure consists of filling the pipeline with gas and pressurizing the pipe to 1.1 times normal operating pressure to verify its integrity.

Equipment used in the project would include three motor graders, 15 welding trucks, 15 tractor trailers, five 2-ton trucks, 25 pickup trucks, one seed driller and tractor, eight backhoes or trackhoes, 15 side-boom tractors, one bending machine, six dozers, one air compressor pressure unit, one boring machine, one ditching machine, and one ditch padding machine.

Construction would not occur if soils are too wet to adequately support construction equipment. If such equipment creates surface ruts more than 4 inches deep, Questar would cease construction activities.

The two pipeline crossings of the Green River would be accomplished by excavation of a trench in the river bed. The crossing of Birch Creek would be spanned at two locations due to the depth of the cut through which Birch Creek runs. Crossings of U.S. Highway 189, Wyoming 372, and Wyoming 235 (the Calpet Road) would be bored in accordance with county and state regulations.

The proposed pipeline would parallel existing pipeline ROWs for approximately 27.4 mi, or 69% of its total length. Where it would parallel an existing pipeline ROW, the proposed

pipeline would be offset approximately 35 ft from the existing pipeline. Therefore, 20 ft of surface disturbance would affect vegetation in the existing ROW rather than previously undisturbed (native) vegetation. Approximately 29,000 ft (5.5 mi) of the proposed pipeline would require a 120 ft ROW for construction.

Construction on steep slopes would be similar to construction in more level areas, except that on steeper slopes some additional stabilization of equipment may be necessary using cables and winches.

### 2.1.3 Operations and Maintenance

Prior to beginning pipeline operations, Questar would submit to the AO a certification of construction verifying that the pipeline has been constructed and tested in accordance with the terms of the ROW grant and in compliance with the plans and specifications and all applicable federal and state laws and regulations.

The pipeline would be routinely patrolled and inspected to check for problems such as erosion, pipe exposure, ROW condition, unauthorized encroachment on the ROW, and any other situations that could result in a safety hazard or require preventive maintenance. These inspections would be conducted on foot or from the air. No vehicles would traverse the pipeline ROW without permission from the BLM. If damage should occur to the pipe from external sources, repair or replacement of the portion of the pipeline would be necessary. Detailed line break and emergency procedures have been developed by Questar and are available from Questar's Rock Springs office. The pipeline would be cathodically protected to prevent corrosion in compliance with industry standards.

Questar would be responsible for weed control on disturbed areas within the ROW, and Questar would coordinate with the AO or county authorities to develop acceptable weed control methods.



### 2.1.4 Reclamation

All disturbed areas would be reshaped, contoured, ripped/chiseled, topsoil respread, and revegetated to as near their original condition as possible. This reclamation would be accomplished as soon as possible after disturbance occurs, and would follow recommendations in the Reclamation Plan (Appendix A) and General Standard Operating Procedures for Surface-Disturbing Activities (Appendix B), which was developed for the CAP (BLM 1991) and modified slightly for the Northwest Pipeline Corporation Saddle Ridge Project Environmental Assessment and Finding of No Significant Impact (BLM 1993). Questar's Plan of Development also includes reclamation and revegetation plans.

### 2.1.5 Abandonment

At the end of the pipeline's useful life, Questar would obtain any necessary authorization from the BLM to abandon the facilities. Questar would contact the AO to arrange a joint inspection of the ROW in order to agree on an acceptable abandonment plan. Abandonment of the pipeline would be in accordance with the policies and standards employed by BLM at the time of abandonment. The pipeline would be purged of all combustible materials and retired in place. All aboveground facilities would be removed and all unsalvageable materials would be disposed of at authorized sites. Regrading and revegetation of disturbed land areas (if applicable) would be completed as described in Appendix A. The abandoned ROW would revert to the control of the landowner.

### 2.1.6 Work Force

The construction workforce is expected to average 100, with 150 during peak construction. No housing or mancamps would be allowed on public lands for the construction crew. Contractors using imported personnel would be responsible for housing them in motels or mobile homes. Questar would have an adequate number of pipeline inspectors on the job

at all times to oversee all phases of pipeline construction to assure compliance with all applicable local, state, and federal regulations. A manager/coordinator would be assigned to the pipeline project to coordinate work with the contractor and officials from local, state and federal agencies.

The proposed pipeline would be operated and maintained by existing Questar personnel.

### 2.1.7 Hazardous Materials

Hazardous materials from EPA's *Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986* that would be used on the proposed project include gasoline, diesel fuel, hydraulic fluid, and various lubricants for vehicles and equipment (Table 2.3). No extremely hazardous substances, as defined in 40 CFR 355, would be used, produced, stored, transported, or disposed of in association with the proposed project.

All measures necessary and appropriate for the prevention and containment of accidental discharges would be taken. Refueling of machinery and fuel storage would not be allowed within 500 ft of a perennial or ephemeral stream.

Any used engine oil or unused lubricants would be stored in appropriate, labeled containers in conformance with all state and federal regulations, and disposed of at an approved site. These lubricants would not be stored within 500 ft of a perennial or ephemeral stream.

Handling of toxic materials would conform with provisions of the Toxic Substances Control Act of 1976, as amended (40 CFR Part 702-799). Any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity as established by 40 CFR Part 117.3 would be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Section 102 B. A copy of any report required by any federal or state



Table 2.3 Hazardous Materials Used During Construction of the Proposed Birch Creek Pipeline.

| Item | Use | Quantity Used | Hazardous Chemicals[1] | Chemical Categories[2] |
|---|---|---|---|---|
| Diesel | Motor fuel | 117,000 gal | Benzene<br>Cumene<br>Toluene<br>Xylene<br>Methyl Tert-Butyl Ether<br>Polynuclear Aromatic Compounds (PAH) | RCRA Ignitability |
| Unleaded regular gasoline | Motor fuel | 31,500 gal | Benzene<br>Cumene<br>Toluene<br>Xylene<br>Methyl Tert-Butyl Ether<br>PAH | RCRA Ignitability |
| Lubricants | Engine and mechanical lubrication | 500 gal | Zinc compounds<br>Copper compounds<br>PAH | |
| Hydraulic Fluid | Hydraulic system operation | 84 gal | Zinc compounds<br>Copper compounds<br>PAH | |

[1] As listed in EPA's *Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986*, as amended.

[2] As listed in EPA's *Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986*, as amended, or from RCRA Waste exhibiting the characteristics of ignitability, corrosivity, reactivity, and EP toxicity.

agency for a reportable release or spill of any hazardous material would be furnished to the AO within 5 working days of the occurrence of the spill or release.

If herbicide usage is required, Questar would comply with all applicable federal and state laws. Herbicides would be used in accordance with registered uses and within limitations imposed by the Secretary of the Interior. Before using herbicides, Questar would obtain written approval from the AO of a plan showing the type and quantity of material used, pest(s) to be controlled, method of application, location of storage, disposal of containers, and any other information deemed necessary by the AO, and complete appropriate NEPA analysis.

### 2.1.8 Applicant-Committed Practices

#### 2.1.8.1 Survey Monuments

Questar would protect all survey monuments, witness corners, reference monuments, and bearing trees within the ROW against disturbance during construction, operation, maintenance, and rehabilitation. If any monument, corner, or accessory is destroyed, obliterated, or damaged, Questar would have a registered land surveyor restore the disturbed monument, corner, or accessory using surveying procedures specified in the *Manual of Surveying Instruction for the Survey of Public Lands of the United States*, 1973 edition. Questar would record such survey in the appropriate county and send a copy to the appropriate BLM office.

#### 2.1.8.2 Fire Control

Personnel affiliated with the proposed pipeline project would be familiar with Questar's Fire Control Plan (Appendix C). The plan is designed to aid project personnel in the prevention and suppression of any fires which may occur during pipeline construction. Questar would

notify the AO of any fires during pipeline construction, and would comply with all rules and regulations administered by the AO concerning the use, prevention, and suppression of fires on federal lands.

In the event of a fire, Questar or its contractor would initiate fire suppression actions in the work area. Suppression would continue until the fire is out or until the crew is relieved by an authorized representative of the agency on whose land the fire occurs. Heavy equipment would not be used for fire suppression outside the ROW without prior approval of the AO unless there is imminent danger to life or property. Questar or its contractor would be responsible for all costs associated with the suppression and rehabilitation of the fires resulting from Questar's operations, employees, or contractors.

Questar's contractor would have a designated representative in charge of fire control during pipeline construction. The designated fire representative would assure that each construction crew has fire fighting tools available at all times. Fire fighting equipment would include extinguishers, shovels, and axes. The number of tools needed would depend on the number of men working in the area. Questar would, at all times during construction, maintenance, and operations, require that satisfactory spark arresters be maintained on internal combustion engines.

2.1.8.3 Cultural Resources

Class III surveys would be completed on all areas proposed for surface disturbance. A 100-150 ft wide corridor would be cleared along the proposed pipeline ROW. If cultural resource surveys identify areas with a high probability of encountering potentially significant subsurface sites, a qualified archaeologist would monitor construction in those areas. Questar and its contractors would inform their employees about relevant federal regulations intended to protect cultural resources. Equipment operators would be informed that if a site is uncovered during construction, activities in the vicinity would immediately cease and



the BLM would be notified. Questar would be responsible for the costs of any mitigation for cultural resources. The cultural resource evaluation process is outlined in Figure 2.6. Questar and its contractors would not utilize historic trails to access the pipeline ROW.

2.1.8.4 Paleontological Resources

If paleontological resources are uncovered after initiation of surface-disturbing activities, Questar and its contractors would suspend all operations that would further disturb such materials and would immediately contact the BLM's AO, who would arrange for a determination of significance and, if necessary, recommend a recovery or avoidance plan. Mitigation of paleontological resources would be on a case-by-case basis, and Questar would be responsible for the costs.

2.1.8.5 Visual Resources

Questar would restore the pipeline ROW to as near its original contour as possible after construction is completed. The ROW would be planted with a seed mixture recommended by BLM or the appropriate landowner. All aboveground structures would be painted to blend with the surrounding terrain. Where security fencing is used at aboveground pipeline facilities, the fencing would be painted to blend with surrounding terrain if the AO determines that it noticeably detracts from the visual environment.

2.1.8.6 Existing Utilities

Questar would secure all ROWs on public lands from BLM prior to pipeline construction. Questar would notify other authorized ROW users of any pipeline crossings or overlaps. Any associated building, zoning, river, creek or utility crossing permits would be secured from the appropriate regulatory agency or private entity prior to pipeline construction.

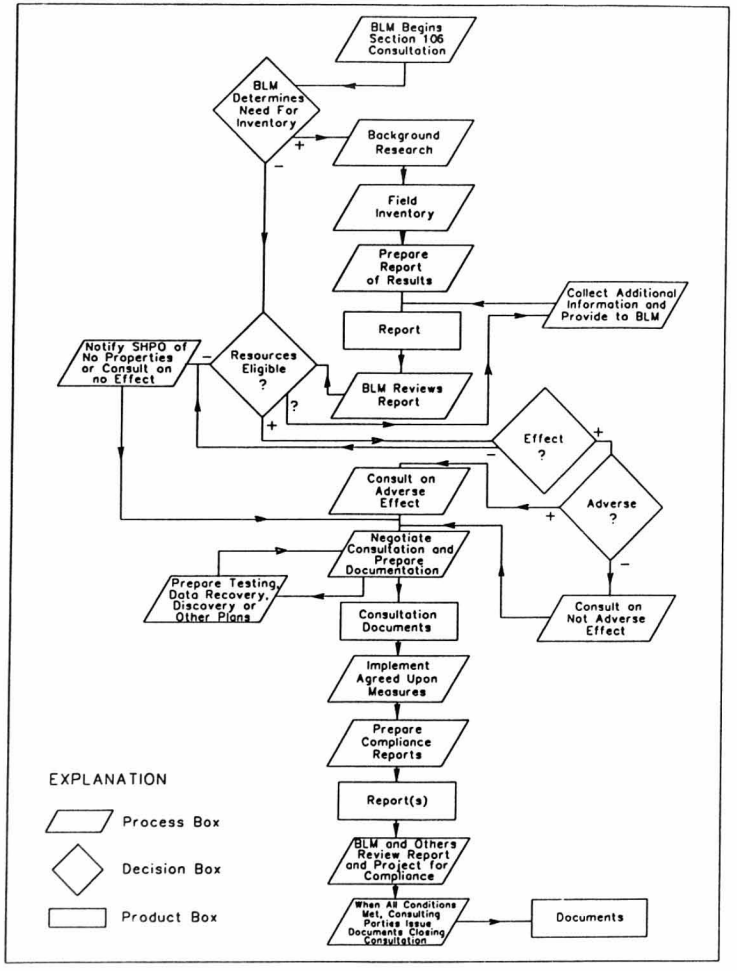


Figure 2.6 Cultural Resource Process.



2.1.8.7 Mitigation on State and Private Surface

Mitigation on state and private surfaces would be the same as on United States lands managed by BLM unless the private landowner requested otherwise on private surface.

2.1.8.8 Emigrant Trail Crossing

The crossing of the Sublette Cutoff of the Emigrant Trail in SW¼ Section 18, T26N, R111W, would be accomplished by restricting surface disturbance to an existing road and pipeline ROW that crosses the trail at that location (Figure 2.7). Preserved historic trail segments would not be used to access the pipeline ROW.

2.1.8.9 Green River Crossings

The two Green River crossings would be constructed immediately after a ROW permit is issued so as to take place within the window of opportunity that avoids conflicts with spawning runs of trout and/or kokanee salmon (September 1-30). Pipelines would be installed so as to be adequately protected from damage. Streambanks would be stabilized in accordance with methods required by the U.S. Army Corps of Engineers. Removal and disturbance of riparian vegetation would be minimized, and riparian areas would be reclaimed according to the Reclamation Plan (Appendix A). No fluids would be discharged into the river or riparian zone. All refueling areas would be at least 500 ft from the river. Pipeline crossings would be at right angles to the river to minimize disturbance. Best Management Practices recommended for utility line crossing by Wyoming Department of Environmental Quality and the U.S. Army Corps of Engineers would be followed.

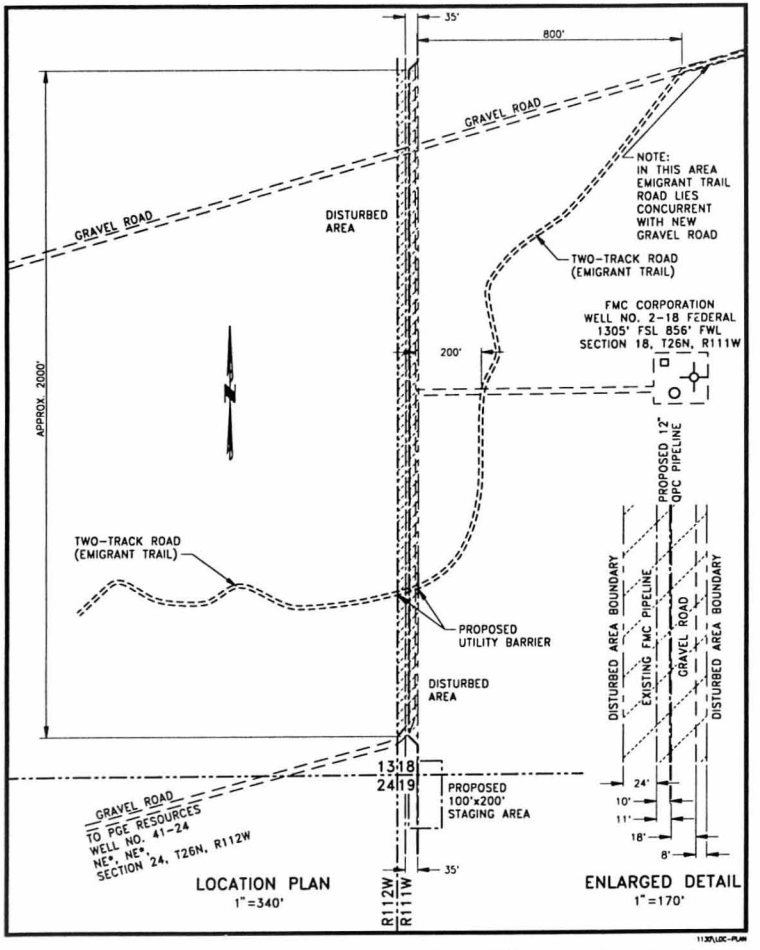


Figure 2.7 Proposed Pipeline ROW Crossing of the Sublette Cutoff of the Emigrant Trail.



## 2.2 ALTERNATIVES

### 2.2.1 Alternative A - Eastern Route

An alternative route for a portion of the pipeline ROW is shown in Figure 2.1. This alternative would continue east up Bird Canyon to County Line Road in NW¼ Section 34, T27N, R11W. The ROW would follow County Line Road south for approximately 11.18 mi and rejoin the proposed ROW in SE ¼ Section 17, T25N, R111W. Total length of Alternative A would be approximately 44.1 mi, adding approximately 4.5 mi to the length of the pipeline, at an additional cost of $604,000 for construction, as compared to the proposed action.

Alternative A would traverse the following natural gas project areas:

- Approximately 3 mi of pipeline would be located adjacent to Exxon's Shute Creek sour gas pipeline (Exxon Riley Ridge Natural Gas Project, Record of Decision, January 1994).
- Approximately 3 mi would be within Basin Operating Company's Bird Canyon project area (Basin Operating Company, Bird Canyon Project, Supplemental Environmental Assessment, Finding of No Significant Impact, Decision Record, June 1993).
- Approximately 1 mi would be within Enron's East LaBarge project area (Enron Oil & Gas Company East Labarge Infill Drilling Project, Environmental Assessment, Finding of No Significant Impact, Decision Record, May 1992).
- Approximately 9 mi would be within Texaco and Washington Energy's project area (Supplemental Environmental Assessment, Finding of No Significant Impact, Decision Record for Texaco Exploration and Production Inc. and Washington Energy Resources Infill Drilling Projects, September 1992).

The portion of Alternative A that would vary from the proposed action would follow existing roads for approximately 15.1 mi (93%) of its length (Figure 2.8) and would parallel existing pipeline ROWs for approximately 3.8 mi. The entire portion would be on surface managed by the BLM. Of the 16.2 mi portion of the alternative route that would vary from the proposed action, 14.6 mi (90%) would require a 70 ft construction ROW and 1.6 mi (10%) a 120 ft ROW (Table 2.4). For the entire length of Alternative A, 39.6 mi (90%) would require a 70 ft construction ROW and 4.4 mi (10%) a 120 ft ROW (Table 2.5). Total ROW disturbance due to construction would be 400.4 acres. Staging areas and areas for block valve, pipe size transition point, and north terminus would add 7.8 acres, for a total of 408.2 acres.

All construction techniques and applicant-committed practices would be the same as for the proposed action. Access to the proposed ROW would be via existing roads and the proposed ROW. The pipeline crossing of the Sublette Cutoff of the Oregon Trail, however, would occur adjacent to County Line Road in SW¼ Section 8, T26N, R111W, and, once the pipeline would leave Bird Canyon no other canyons would be crossed.

Table 2.4 Surface Disturbance Due to Pipeline Construction for the Portion of Alternative A that Varies from the Proposed Action

| | Surface Disturbance | |
|---|---|---|
| ROW Width (ft) | Linear Feet (mi) | Acres |
| 70 | 76,828 (14.6) | 123.5 |
| 120 | 8,550 (1.6) | 23.6 |
| Total | 85,378 (16.2) | 147.1 |

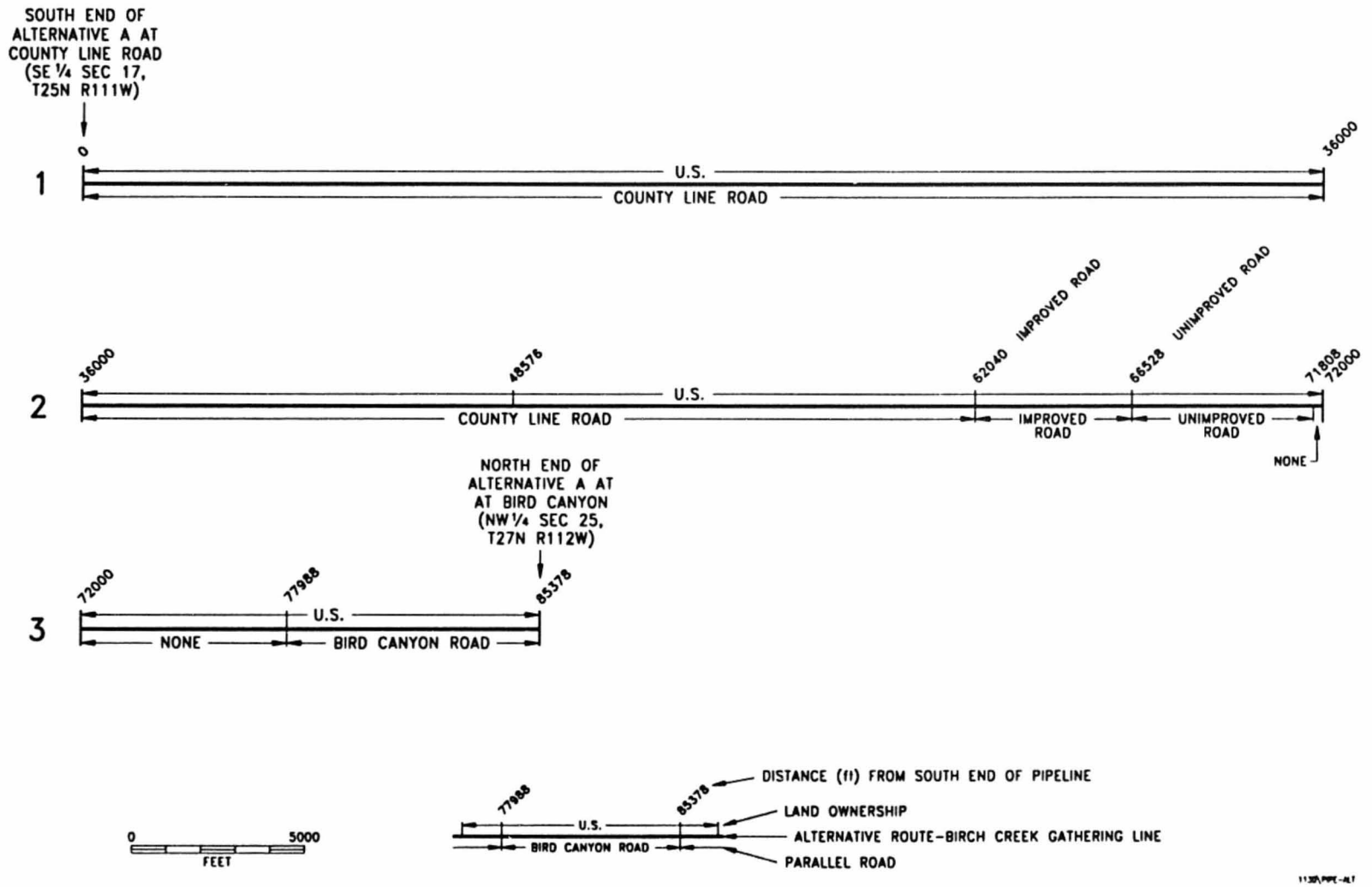


Figure 2.8 Diagrammatic Representation of Alternative A of the Proposed Birch Creek Pipeline Route Showing Surface Ownership, Parallel Roads, and Prominent Features.

Table 2.5 Surface Disturbance Due to Pipeline Construction for Alternative A.

| | Surface Disturbance | |
|---|---|---|
| ROW Width (ft) | Linear Feet (mi) | Acres |
| 70 | 209,338 (39.6) | 336.4 |
| 120 | 23,250 (4.4) | 64.0 |
| Total | 232,588 (44.1) | 400.4 |

#### 2.2.2 Alternative B - No Action

Under the No Action Alternative, the pipeline would not be constructed. No ground would be disturbed and no impacts to the existing physical or biological environment would take place. Under the No Action Alternative, Questar would be unable to gather natural gas for area producers through its existing pipeline system and the flexibility to transport natural gas to meet current and future demands would be lost.

### 2.3 ALTERNATIVES CONSIDERED BUT REJECTED

Construction of the proposed pipeline on the west side of the Green River adjacent to the existing Williams, Exxon, and Amoco pipelines was considered but rejected because of congestion caused by existing facilities and topographical features.



## 3.0 AFFECTED ENVIRONMENT

Critical elements of the human environment (BLM 1988b), their status in the project area, and their potential to be affected by the proposed project are listed in Table 3.1. Four critical elements (areas of critical environmental concern, prime or unique farmlands, wild and scenic rivers, and wilderness) are not present and are not discussed in this EA. In addition to the critical elements, this EA discusses potential effects of the proposed project on surface ownership/use, socioeconomics, geology/minerals, paleontology, soils/watersheds, vegetation/riparian/wetlands, wildlife, wild horses, livestock grazing, recreation, and visual resource management.

### 3.1 SURFACE OWNERSHIP/USE

The majority of the lands in the vicinity of the proposed pipeline are owned by the United States and managed by the BLM. The State of Wyoming normally owns sections 16 and 36 in each township, and private ownership is generally limited to areas adjacent to major drainages. This is reflected in that 91% of the proposed pipeline would be located on BLM lands, 8% on State of Wyoming lands, and 1% on private lands. Major land uses in the project area include oil and gas production, livestock grazing, wildlife habitat, and recreation.

### 3.2 SOCIOECONOMICS

Much of the socioeconomic impact of the proposed pipeline is expected to take place in Sweetwater County, especially in the Rock Springs/Green River area. Some impacts are likely in the La Barge area of Lincoln County and the Big Piney/Marbleton area of Sublette County.

Table 3.1 Critical Elements of the Human Environment in the Project Area.

| Element[1] | Status on EA Area | Addressed in EA |
|---|---|---|
| Air quality | Potentially affected | Yes |
| Areas of critical environmental concern | None present | No |
| Cultural remains | Potentially affected | Yes |
| Farmlands (prime or unique) | None present | No |
| Floodplains | Potentially affected | Yes |
| Native American religious concerns | Potentially affected | Yes |
| Threatened and endangered species | Potentially affected | Yes |
| Wastes, hazardous or solid | Potentially affected | Yes |
| Water quality | Potentially affected | Yes |
| Wetlands/riparian zones | Potentially affected | Yes |
| Wild and scenic rivers | None present | No |
| Wilderness | None present | No |

[1] As listed in BLM *NEPA Handbook H-1790-1* (BLM 1988b).

### 3.2.1 Demographics

Wyoming's population increased from 332,416 to 469,557 (+41%) between 1970 and 1980 as people moved into the state seeking employment in mining, petroleum, and related industries. Falling mineral prices in the early 1980s slowed the influx of jobseekers and resulted in significant unemployment. By 1990, Wyoming's population had fallen to 453,588, 3.4% lower than the 1980 level (U.S. Department of Commerce [USDOC] 1990).

Sweetwater County's population increased 127% during the 1970 to 1981 energy boom, exhibiting an even more dramatic growth pattern than Wyoming as a whole. However, the subsequent slump in energy production between 1981 and 1987 contributed substantially to



increasing unemployment throughout the state, and by 1990, Sweetwater County's population had dropped to 38,823, down 13.7% from a peak population of 45,008 in 1981 (Department of Administration and Information [DAI] 1991). Despite the net loss of population during the 1980s, Sweetwater County has maintained a relatively stable population due to oil and gas exploration in the area and the increased demand for soda ash, which is mined in the western portion of the county. Sweetwater County's population is expected to increase steadily throughout the 1990s, reaching approximately 47,700 by the year 2000 (Woods & Poole Economics, Inc. 1993).

### 3.2.2 Economic Base and Employment

Sweetwater County has been buffered, to a degree, from the serious economic problems characteristic of much of the rest of the state since 1981. Although overall statewide earnings increased only 3.9% between 1981 and 1989, Sweetwater County posted a 7.0% increase during this same period. Substantial increases in government (90.6%); manufacturing (63.1%); transportation, communication and utilities (44.7%); and wholesale (33.1%) sectors offset decreases in the farm (37.0%) and construction (54.1%) sectors (DAI 1991).

Coal Mining, trona mining, and oil and gas exploration and development have been a key factor in Sweetwater County's economic stability, enabling an increase of 2.9% in overall earnings in the mining industry between 1981 and 1989, despite a statewide decrease of 26.4% during this same period (DAI 1991). Five companies mine trona west of Green River and manufacture products from refined soda ash (trona), and several new product facilities are under construction at these sites. Recent exploration for trona south of Farson and Japanese tariff reductions on U.S. exported soda ash are expected to result in increased demand for and sales of Wyoming trona (Harris 1992). Additionally, trona prices are expected to increase over the next several years (Sweetwater Economic Development Association [SWEDA] 1992).

Sweetwater County accounted for 6.5% (11,937,000 tons) of the state's coal production in 1990, up 6.2% from 1981. With passage of the Clean Air Act Amendments in 1990, mining of low-sulfur coal in the area is expected to increase, and several coal companies have recently applied for leases within the county. Although oil production has declined throughout the state since the early 1980s, Sweetwater County produced 8,978,000 barrels of oil in 1990, making it the third-ranking oil-producing county in the state. The county also ranks third in natural gas production, accounting for 19.4% of the 899,190,000 MCF produced by the state in 1990 (DAI 1991).

The State of Wyoming's November 1993 labor force was 237,003, with unemployment at 4.6%. Sweetwater County's labor force in November 1993 was 20,254, with an unemployment rate of 4.8% (personal communication, Ellen Schreiner, State Employment Office 1994). Unemployment in February 1994 was 7.9% in Sweetwater County, 7.4% in Sublette County, and 10.9% in Lincoln County (personal communication, Gordon Wolford, Wyoming Department of Employment, Casper, 1994). Unemployment rates tend to be high in February. In 1989, per capita personal income was $14,717, slightly above the state average of $14,554, but 16.3% lower than the national average (DAI 1991). In 1993, the mining industry employed the largest number of people (4,598) and paid the highest weekly wage ($792 per week) in Rock Springs (Wyoming Department of Commerce [WDOC] 1993). Public administration provided the second largest number of jobs in Rock Springs, employing 3,581 people at an average weekly rate of $391.

La Barge (Lincoln County) and Big Piney/Marbleton (Sublette County) depend on the oil and gas industry for 75-90% of employment and income, with the remainder depending upon government, services, construction, wholesale and retail operations, and agriculture (BLM 1990). Because of this dependency on oil and gas operations, the economies of these communities are susceptible to the boom/bust cycles common to minerals activity.

### 3.2.3 Housing

In 1990, Sweetwater County had 15,444 year-round housing units, with a vacancy rate of 13.4% (1,828 units). The rental unit vacancy rate was 14%, and the homeowner vacancy rate was 3%. Of 13,624 occupied units in the county, 74% were family households, and 26% were nonfamily households. The number of persons per household averaged 2.8 (USDOC 1990).

According to WDOC (1993) 7,200 single family, 1,870 mobile home, 2,041 multi-family and 66 senior housing units were occupied in Rock Springs during 1993. However, current housing data are not very reliable, and a task force has been formed to complete an indepth study of housing in Sweetwater County (personal communication, Mark Kot, County Planner, Sweetwater County Planning Office 1993). Housing is generally in short supply throughout the county, with a severe shortage occurring in Rock Springs and Green River where available rentals and properties for sale are almost nonexistent (personal communication, Bonnie Baker, Co-chairperson of the Housing Task Force 1993 and 1994). There are about 250 vacant mobile home pads available in Rock Springs. Availability of other types of temporary housing (apartments, motels) is currently very limited (personal communication, Steve Horton, City Planner, Rock Springs, 1994). Temporary housing is also in short supply in the La Barge/Big Piney/Marbleton area (personal communication, Dennis Hacklin, La Barge Realty, La Barge 1994).

### 3.2.4 Transportation

Surface transportation in Sweetwater County is provided by a network of primary, secondary, local, and primitive roads. I-80 is the principal roadway linking Sweetwater County towns and cities with the rest of southern Wyoming and the national highway system. Both Rock Springs and Green River are located adjacent to I-80. State Highway 372 runs north from I-80 at Green River and provides general access to the project area from the south. It joins



U.S. 189 between Kemmerer and La Barge in Lincoln County, and U.S. 189 provides primary highway access to the north end, as does the Calpet Road (State Highway 235) in Sublette County. Other access is provided by county roads and oil and gas roads.

The mainline of the Union Pacific Railroad Company links Rock Springs with the major east-west rail line through the central portion of the United States. Sweetwater County Airport is located near Rock Springs (runway length 10,000 ft), with daily flights available. Four bus lines also service Rock Springs and the surrounding area (WDOC 1993).

## 3.3 CULTURAL RESOURCES

Cultural resources, which are protected under the National Historic Preservation Act of 1966 and the Archaeological Resource Protection Act of 1979, are the nonrenewable remains of past human activity. The Green River Basin appears to have been inhabited by Native American populations since approximately 11,000 years before present (B.P.) by highly mobile hunters and gatherers who exploited a wide variety of resources. The archaeological record of the area has been established through surveys, test excavations, data recovery excavations, a limited amount of ethnographic material pertaining to the extant Native American populations at the time of Euroamerican contact, and historic documents pertaining to the settlement and use of the area by Euroamericans. Two chronological frameworks are pertinent to prehistoric sites within the projects area. Frison (1991) defines three broad temporal periods including the Paleoindian, Archaic (which is subdivided into the Early, Middle, and Late), and Late Prehistoric, whereas Metcalf (1987), as revised by McNees et al. (1993), further subdivides the Archaic and Late Prehistoric periods into specific phases for the Wyoming Basin. This scheme is divided, from earliest to latest, into the Paleoindian, Great Divide, Green River, Pine Spring, Deadman Wash, Uinta, and Firehole phases. As originally proposed by Metcalf (1987), the cultural/historical scheme for southwest Wyoming was based only on the radiocarbon age frequency curve and lacked detail on changes of artifact types and subsistence and settlement patterns. The start

of the Protohistoric period is dated at about A.D. 1700 when European influences began to have a major impact on Native American groups. The Shoshone was the primary Native American group that used the project area (Steward 1938; Shimkin 1947).

Historic use of the project area includes ranching and sheepherding. The proposed pipeline intersects the Sublette Cutoff of the Oregon Trail in Section 18, T26N, R111W in Lincoln County, Wyoming. Urbanek (1988) states that the Sublette Cutoff was first used in the 1820s by the Sublette brothers. Emigrant use of the cutoff began in 1844 as an alternative to the traditional Oregon Trail which led south to Fort Bridger (BLM 1986b). Another variant of the Oregon Trail, the Slate Creek Cutoff (Baker-Davis Trail), and the Kinney Cutoff of the Oregon Trail would be crossed below the dam of Fontenelle Reservoir (Section 32, T24N, R111W) (BLM 1986b; Franzwa 1982). These trails date from the 1840s and 1850s (Franzwa 1982). The Opal Wagon road, which dates to the early 1920s (Urbanek 1988), is crossed in Section 17, T27N, R112W by the ROW. An unnamed freight road would be crossed in Section 16, T23N, R111W. The Roy Bird Homestead (Section 16, T27N, R112W) (Photo 3.1) and the Williams Ranch (Section 17, T23N, R111W) are both crossed by the project ROW, as is an unnamed freight road dating to approximately 1912.

A review of file searches from the State Historic Preservation Office (SHPO) indicates that 186 cultural resource inventories have been conducted in sections crossed by the proposed ROW, and information from these inventories provides the basis for describing prehistoric and historic resources within the project area. The 186 inventories included small block areas (5-40 acres) for wellpads and linear surveys for pipelines, access roads, powerlines, and underground communication lines. Several linear surveys intersect the proposed ROW; however, much of the project area has not been surveyed at the Class III level. Most recorded sites along the proposed ROW consists of lithic scatters and open camps associated with alluvial terraces of the Green River and aeolian deposits. The proposed ROW could potentially effect a total of 27 sites (Table 3.2). Of the 27 sites, 19 (70.3%) are prehistoric, seven (25.9%) are historic, and one (3.8%) is a multicomponent site containing both



Photo 3.1 The Roy Bird Homestead on the Banks of the Green River, Section 16, T27N, R112W.

prehistoric and historic artifacts. The 19 prehistoric sites include six (31.5%) sites eligible for inclusion on the National Register of Historic Properties (NRHP), nine (47.4%) ineligible for inclusion on the NRHP, and four (2.1.%) sites that have no information regarding eligibility. The seven historic sites include six (85.7%) sites eligible for the NRHP and one (14.3%) site that has no information regarding its eligibility. The single multicomponent site is comprised of a lithic scatter and historic debris; it is ineligible for inclusion on the NRHP. Data provided by the file searches indicate a low site density (fewer than three sites per section), although site density increases slightly--to five sites per section--near the Green River.

Review of a file search from SHPO indicates that a total of 110 cultural resource inventories have been conducted in the sections transected by the Alternative A ROW. Several linear surveys intersect the alternative ROW; however, much of the Alternative A ROW has not

Table 3.2 Prehistoric and Historic Sites in the Vicinity of the Proposed Birch Creek Pipeline Route.

| Site Type | Number | Number of Eligible | Number of Not Eligible | Number of Undetermined Eligibility |
|---|---|---|---|---|
| **Prehistoric** | | | | |
| Ceramic scatter | 1 | 1 | 0 | 0 |
| Lithic scatter | 6 | 0 | 5 | 1 |
| Open camp | 13 | 5 | 5 | 3 |
| **Historic** | | | | |
| Freight road | 1 | 1 | 0 | 0 |
| Kinney cutoff | 1 | 1 | 0 | 0 |
| Opal wagon road | 1 | 1 | 0 | 0 |
| Roy Bird homestead | 1 | 1 | 0 | 0 |
| Slate Creek cutoff (Baker-Davis Trail) | 1 | 1 | 0 | 0 |
| Sublette cutoff | 1 | 1 | 0 | 0 |
| Williams Ranch | 1 | 1 | 0 | 0 |
| Total | 27 | 13 | 10 | 4 |

been surveyed at the Class III level. Alternative A does pass at least 31 sites. Of the 31 sites, 24 (77%) are prehistoric and seven (23%) is historic (Table 3.3). The 24 prehistoric sites include eight (33%) sites eligible for inclusion on the National Register of Historic Properties (NRHP), 12 (50%) ineligible for inclusion, and four (17%) of undetermined eligibility. The seven historic sites near Alternative A ROW include six (86%) sites eligible for the NRHP and one (14%) site of undetermined eligibility. Data provided by the file search indicate a low site density (fewer than three sites per section), which increases slightly--to five sites per section--near the Green River.



Table 3.3 Prehistoric and Historic Sites in the Vicinity of Alternative A of the Proposed Birch Creek Pipeline Route.

| Site Type | Number | Number of Eligible | Number of Not Eligible | Number of Undetermined Eligibility |
|---|---|---|---|---|
| **Prehistoric** | | | | |
| Ceramic scatter | 1 | 1 | 0 | 0 |
| Lithic scatter | 6 | 0 | 5 | 1 |
| Open camp | 17 | 7 | 7 | 3 |
| **Historic** | | | | |
| Freight road | 1 | 1 | 0 | 0 |
| Kinney cutoff | 1 | 1 | 0 | 0 |
| Opal wagon road | 1 | 1 | 0 | 0 |
| Roy Bird homestead | 1 | 1 | 0 | 0 |
| Slate Creek cutoff (Baker-Davis Trail) | 1 | 1 | 0 | 0 |
| Sublette cutoff | 1 | 1 | 0 | 0 |
| Williams Ranch | 1 | 1 | 0 | 0 |
| Total | 31 | 15 | 12 | 4 |

Two prehistoric site types (lithic scatters and open camps) have been identified within the project area. Prehistoric sites have been interpreted to represent short-term occupations with activities focussed on exploitation of local animal, plant, and lithic resources (Smith and Creasman 1988; Wheeler et al. 1986). Temporally diagnostic artifacts (projectile points) from recent projects suggest occupation from the Paleoindian period through the Late Prehistoric period (9,000-500 years B.P.).

The BLM has contacted Native American groups that may have sites of religious or cultural importance in the area and requested that the tribes advise them of any such sites that may be affected by the project. No such sites are known at this time; however, if any sites are

identified, they will be treated as confidential information and evaluated with respect to potential impact on a site-specific basis during ROW application review.

## 3.4 GEOLOGY/MINERALS

### 3.4.1 Geology

The Laney Member of the Eocene Green River Formation dominates the surface geology along the proposed pipeline route (Love and Christiansen 1985). The Laney Member is composed of oil shale, marlstone, tuff, and limestone, and contains lenses of sandstone. The Fontenelle Tongue or Member of the Green River Formation and the La Barge and Chappo Members and the New Fork Tongue of the Wasatch Formation outcrop in northeastern portions of the route. These are composed of mudstone, sandstone, conglomerate, oil shale, limestone, and siltstone. The Bridger Formation, primarily composed of sandstone, claystone, marlstone, and conglomerate, outcrops in the southernmost portion of the route. Quaternary alluvial deposits, composed of clay, silt, sand, and gravel, occur along the Green River and its tributaries.

### 3.4.2 Mineral Resources

Oil and Gas. Oil and gas exploration in the region began in the early 1900s (BLM 1992) in the Rock Springs Uplift. There are 13 developed and 1 undeveloped oil and gas fields along or adjacent to the proposed pipeline ROW (Wyoming Oil and Gas Conservation Commission 1992), and in the north the ROW would traverse a Known Geologic Structure and areas of dense well locations (BLM 1986c).

Coal/Trona. All of Sweetwater County is within the Green River Coal Region, but there are no claims and no known coal mining potential along the proposed ROW (BLM 1992). Similarly, the area is not known to have trona mining potential.



Locatable and Salable Minerals. There are no known locatable minerals in the vicinity of the proposed ROW (BLM 1992). Gravel, the only known salable mineral in the EA area, is being quarried from deposits on the south end of Fontenelle Reservoir but operations would not be affected by the proposed project.

Oil Shale. The Laney Member of the Green River Formation contains oil shale resources. However, oil shale is not expected to be an economically important mineral in the area in the near future (BLM 1992).

### 3.4.3 Geologic Hazards

There are no known active faults in the vicinity of the proposed ROW. There is a known earthquake epicenter just north of La Barge, in T27N, R112W, and there are numerous other epicenters 12 to 30 mi to the west (Case et al. 1990). None of the earthquakes occurring in the area have been very intense (intensities of II or III on the Modified Mercalli Intensity Scale and magnitudes of 2.5 to 4.7 on a scale of 2.0 to 7.5).

There are no known landslides or abandoned underground mines along the proposed ROW (personal communication, April 1994, with James Case, Wyoming Geological Survey, Laramie), but there is a potential for encountering windblown deposits (Larsen and Case, unpubl. data). Known windblown deposits occur in the southern portion of T23N, R111W (Case and Boyd 1987), in Section 32, T24N, R11W, and Section 17, T27N, R112W; however, mapping has not been ground-truthed, so these windblown deposit locations are only preliminary.

## 3.5 PALEONTOLOGY

The important fossil record of the Green River Basin is well known (BLM 1992). There are no known fossil localities in the vicinity of the proposed ROW (personal communication,

April 1994, with Brent Breithaupt, Geological Museum Curator, University of Wyoming, Laramie) but there is potential for uncovering fossils representing a variety of life forms.

The Green River Formation contains fossils from each of the five biological kingdoms and is well known for the abundant fish fossils that occur in the formation in Wyoming, Colorado, and Utah (Grande 1984). The Laney Member is especially fossiliferous. Mammalian fossils are not common because Green River fossils are predominantly from lake beds, but reptile (crocodiles, alligators, snakes, lizards), amphibian (frogs, salamanders), bird (pelicans, grouse, shorebirds, and small perching birds), and insect and invertebrate fossils are abundant. Although not common, many types of mammalian fossils have been recovered, including marsupials, insectivores, primates, rodents, carnivores, and condylarths (ungulates).

The fossil flora of the Laney Member is not well studied but includes sycamore, horsetail, and lily pads. Other members of the Green River Formation, however, contain a diverse mixture of trees, shrubs, and flowers, suggesting that the fossil flora of the Laney Member may be more diverse than is now known. Insects and other invertebrates (gastropods, arthropods), algae, fungi, flagellates, and bacteria also have been recovered from the Green River Formation.

The Bridger Formation was deposited in a fluvial (stream) environment, compared with the lacustrine (lake) environment that created the Green River Formation, and the differences are reflected in the fossil assemblage. The mammalian fossil fauna (e.g., marsupials, rodents, insectivores, condylarths [archaic ungulates], perrisodactyls [odd-toed ungulates] and artiodacts [even-toed ungulates]) are common (Gazin 1976, West 1981, 1984; West and Hutchinson 1981; McKenna and Haase 1992). Reptile fossils (crocodiles, alligators, lizards, turtles) are abundant (Hirsch and Kohring 1992, Sullivan 1986, West and Hutchinson 1981), and fossil trees and algal mats also have been found (Pipiringos 1955).



The La Barge and Chappo Members and the New Fork Tongue of the Wasatch Formation also outcrop along the proposed ROW and are known to contain a diverse vertebrate fossil fauna (Breithaupt 1990, Morris 1954), including primates, rodents, carnivores, marsupials, tillodonts, creodonts, a variety of ungulates, and reptiles.

### 3.6 SOILS/WATERSHEDS

Soil characteristics are summarized from order 3 and 4 soil surveys, topographic maps, and field observations, and have been grouped into four general categories based on features related to pipeline construction and reclamation.

1. Deep Soils with Unfavorable Subsoils

These soils typically have several inches to a foot of surface soil that has favorable characteristics for plant growth, and generally occur on slopes of less than 10%. The subsoils have chemical or physical features that are restrictive to plant growth, including high salinity/alkalinity, high calcium carbonate, and/or high gravel content. High salinity/alkalinity is the most common limiting feature along the northern and central portions of the pipeline corridor, whereas all three restrictive features occur in the southern portion. Potential problems include difficult reclamation, especially if the surface soil is buried or mixed with the subsoils. Saline/alkaline sediment results when erosion occurs on these areas.

2. Wet Alluvial Soils and Water

These soils occur at the two crossings on the Green River. Soils adjacent to the Green River are wet most of the time and have textures ranging from loamy to sandy and gravelly. Some are saline. Potential problems include susceptibility to rutting damage and sediment movement into the river.

3. Shallow and Very Shallow Soils, Slopes Steeper than 25%

These soils occur on slopes steeper than 25% and are typically a few inches to 20 inches deep over sandstone or shale bedrock. Textures are usually loamy, and outcrops of sandstone and shale are commonly intermingled with these soils. Potential problems include difficult excavation in the harder sandstones, high erosion hazard, loss of thin soil material, and difficult reclamation in the shallow and very shallow soils.

4. Shallow and Very Shallow Soils, Slopes less than 25%

Theses soils are typically a few inches to 20 inches deep and occur over sandstone or shale bedrock. Textures are usually loamy. These soils are intermingled with deeper soils that have little or no limitation. Potential problems with the soils that do have limitations include difficult excavation in the harder sandstones, moderate erosion hazard on slopes, loss of thin soil material and difficult reclamation in the shallow and very shallow soils.

The locations of these four categories of soils along the route of the proposed action and Alternative A are shown in Figures 3.1 and 3.2, respectively.

## 3.7 WATER RESOURCES

### 3.7.1 Surface Waters

The principal surface water in the project area is the Green River, a major tributary to the Colorado River. The Green River below Fontenelle Reservoir drains approximately 4,280 $mi^2$ and has a mean annual flow of 1,676 cubic ft per second (cfs) (Druse et al. 1993). Maximum flows occur in May (2,511 cfs), June (4,600 cfs), and July (3,312 cfs) and minimum flows in December (763 cfs), January (781 cfs), and February (834 cfs). Mean flows in September and October are 1,290 cfs and 1,030 cfs, respectively. The Green River is a

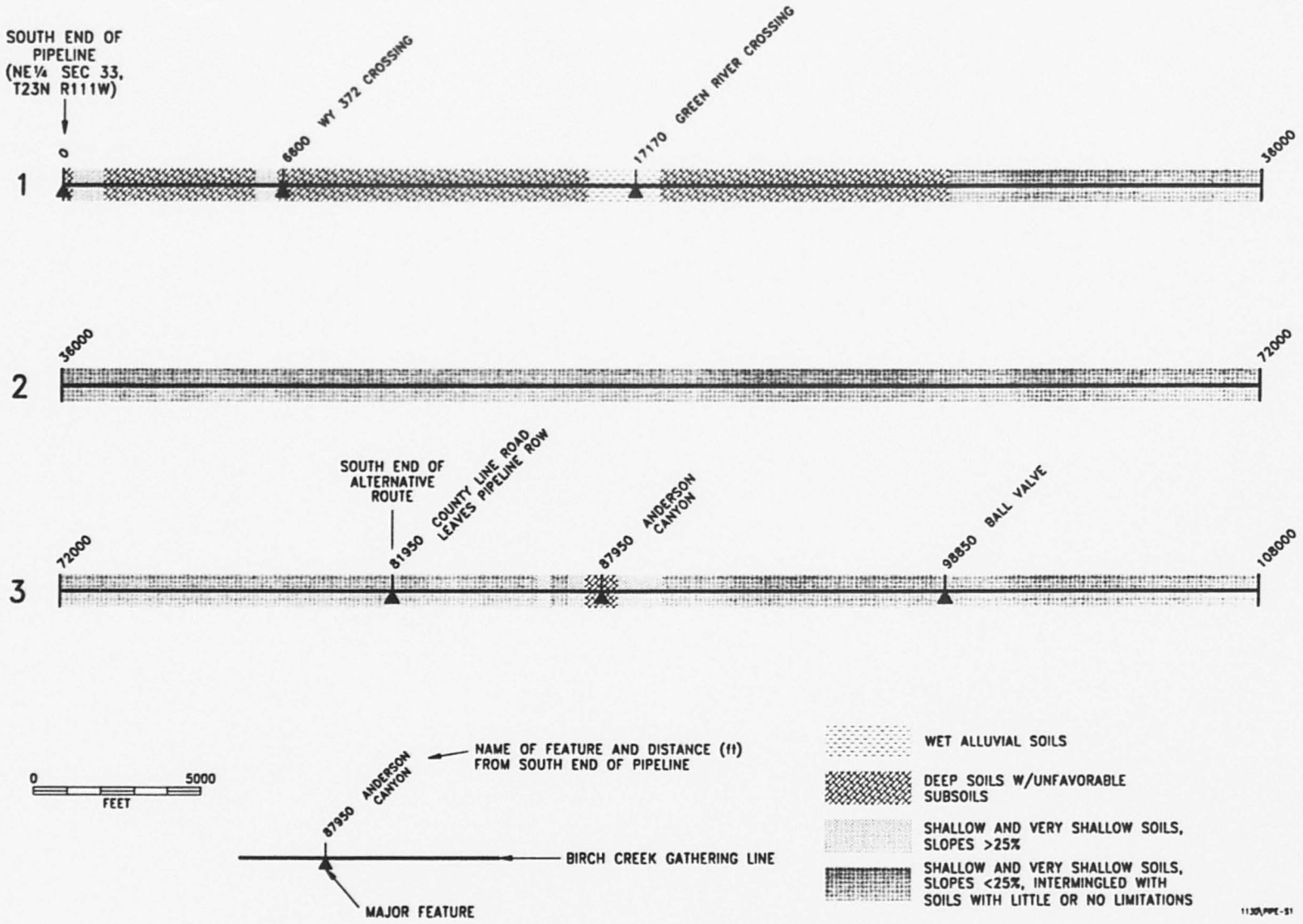


Figure 3.1 Location of Various Soils Types Along the Proposed Birch Creek Pipeline Route.

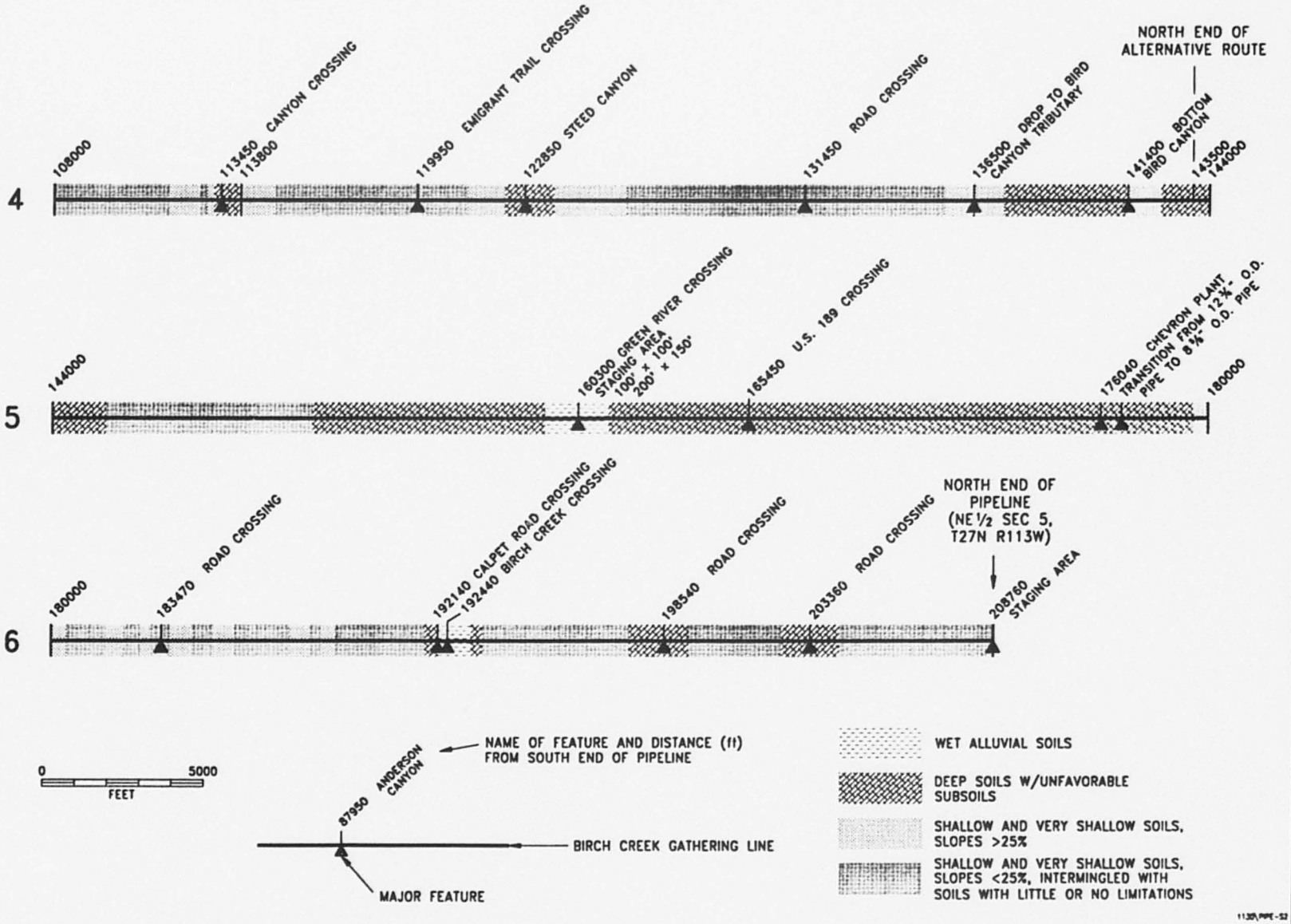


Figure 3.1 Location of Various Soils Types Along the Proposed Birch Creek Pipeline Route. (Continued)



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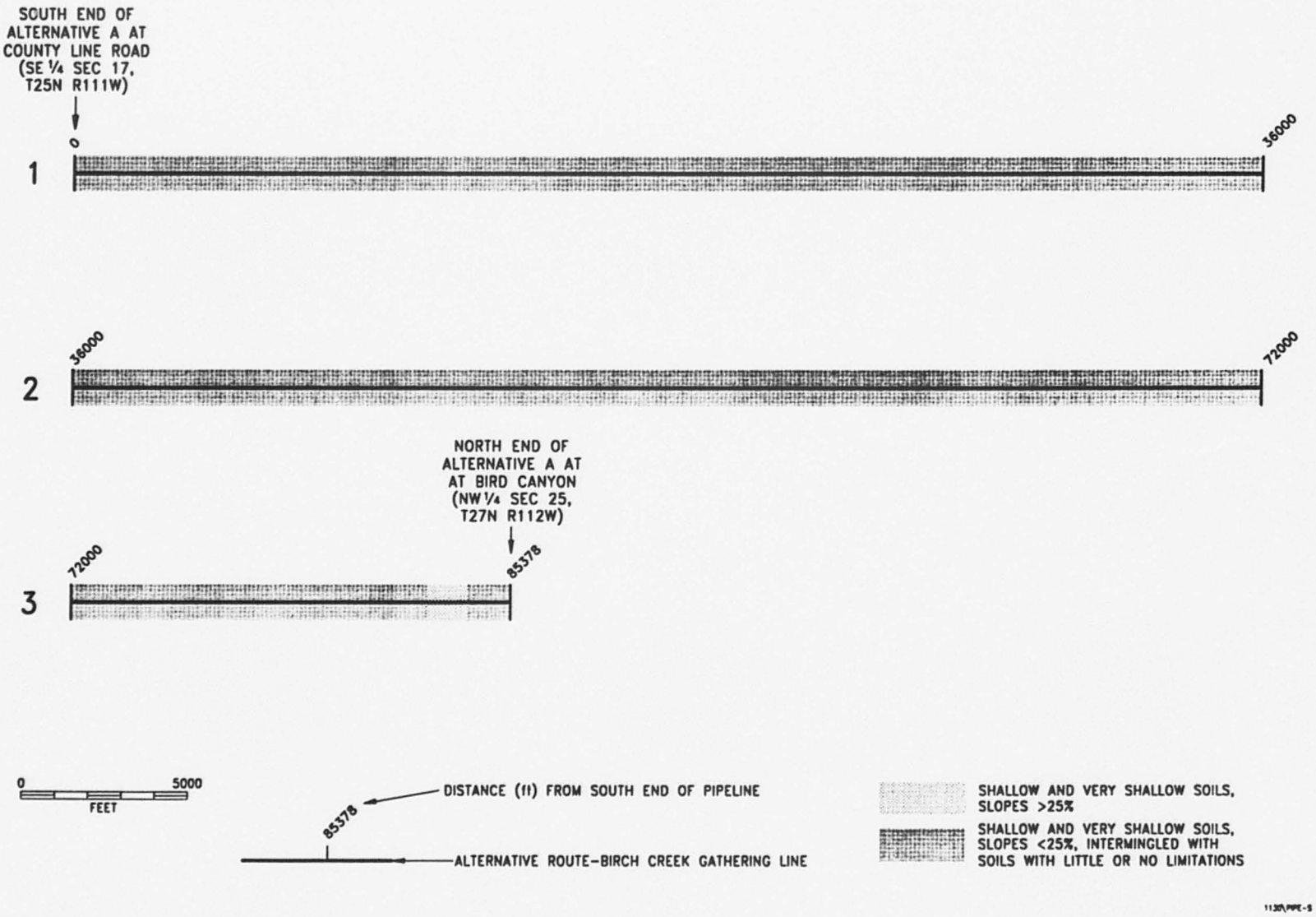


Figure 3.2 Location of Various Soil Types Along Alternative A of the Proposed Birch Creek Pipeline Route.

Class 2 stream in the area of the proposed project (DEQ 1990) and supports coldwater game fish including brown trout, rainbow trout, mountain whitefish, and kokanee salmon. Birch Creek is a Class 3 stream, meaning it presently supports, or has the capability of supporting, nongame fish only (Photos 3.2 and 3.3). Other watercourses in the project area, such as Bird Canyon, Steed Canyon, and Anderson Canyon are ephemeral and flow only after significant precipitation events.

Floodplains in the project area include low-lying areas along the Green River and the lower portions of major ephemeral washes (U.S. Department of Housing and Urban Development (HUD) (1977a, 1977b, 1977c, 1978, 1980a, 1980b, 1980c).

### 3.7.2 Groundwater

Groundwater Occurrence. Because the proposed pipeline would disturb only the upper 3-4 ft of material, deeper water-bearing formations would not be affected by the proposed project and are not discussed. Unconfined aquifers do occur near the ground surface and include aquifers in Quaternary alluvium and the upper portions of aquifers in Tertiary sedimentary rocks (Welder 1968). Project activities are likely to encounter the following formations: unconsolidated Quaternary alluvial and aeolian (wind blown) deposits, the Bridger Formation (in the south); and the Laney Member of the Green River Formation (Welder 1968, Ahern et al. 1981).

The Quaternary aquifers are composed of unconsolidated sand, gravel, silt, and clay and occur along the Green River and its tributaries. These aquifers are highly permeable typically 100 gallons per minute (gpm). The Bridger aquifer is composed of conglomerates which contain abundant water (Ahern et al. 1981), and well yields range from 2-100 gpm. The Laney aquifers are composed of sandy units interbedded with shale and marlstone, and normally yield 1-75 gpm.



Photo 3.2 Birch Creek in the General Vicinity of the Proposed Lower Pipeline Crossing. Birch Creek Would Be Spanned As It Was by this Abandoned Pipeline.

The primary source of recharge for surficial aquifers in the project area is from infiltration of runoff and snowmelt where the formations outcrop (Welder 1968, Ahern et al. 1981). Most of the runoff is derived from higher elevations, especially the Wind River Mountains, but seepage from stream channels and from adjacent aquifers also contributes to groundwater recharge. The major sources for groundwater discharge include evaporation and discharge into the Green River. Water movement in the unconfined aquifers is generally controlled by topography, and such movement tends to be towards the Green River (Ahern et al. 1981, Welder 1968).

Groundwater Use. Groundwater contributes only a small fraction (approximately 2.5% in 1981) of water used within the Green River Basin (Ahern et al. 1981). Its primary uses are stock watering, irrigation, and domestic purposes (Ahern et al. 1981, Welder 1968). Most water used for domestic purposes is supplied by surface water, although groundwater from

Photo 3.3 Birch Creek in the Vicinity of the Proposed Upper Pipeline Crossing. Birch Creek is Headcutting Upstream to the Road at this Location and Would Be Spanned by the Pipeline.

the Green River, Bridger, and Quaternary alluvial aquifers are an important source of domestic water in rural areas (Ahern et al. 1981).

Groundwater Quality. Groundwater quality in the Green River Basin ranges from excellent to poor (Ahern et al. 1981, Welder 1968, Bruce 1993, Price and Waddell 1973). Water quality in the Quaternary aquifers is generally good, rarely exceeding the secondary standard for total dissolved solids (TDS) in drinking water (500 milligrams/liter [mg/l]). The Quaternary aquifers generally supply water suitable for domestic uses (Ahern et al. 1981).



In the Bridger Formation, TDS ranges from 400-5,000 mg/l, whereas groundwater in the Laney Member of the Green River Formation contains 2,000-7,000 mg/l TDS.

## 3.8 AIR QUALITY/NOISE

### 3.8.1 Air Quality

Air quality in the region is generally excellent (BLM 1992:337-344). The project area is in the Green River Basin airshed, and is designated a Class II air quality area (BLM 1992). Class II areas are those that may be developed, and the release of limited concentrations of certain pollutants over ambient levels is permitted as long as National Ambient Air Quality Standards are maintained (WDEQ 1989). The nearest Class I air quality area is the Bridger-Teton Wilderness, located approximately 50 mi to the north (personal communication, February 1994, with Lee Gribovicz, Lander District Air Quality Engineer, WDEQ). Background visibility in the area is often greater than 70 mi (BLM 1992).

The principle pollutant in the vicinity of the project area is particulate matter, measured as both total suspended particles (TSP) and/or as $PM_{10}$ (i.e., particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers [WDEQ 1989]). Fugitive dust (i.e., uncontrolled, wind-carried particles) from natural sources, roads, and disturbance associated with regional gas exploration and development, recreation, and livestock grazing contribute to the ambient levels of TSP and $PM_{10}$ in and adjacent to the project area, especially during dry, windy seasons. No violations of Class II TSP or $PM_{10}$ air quality standards are known for the project area. The annual arithmetic average for $PM_{10}$ at a monitoring station at the Seedskadee National Wildlife Refuge, located just south of the project area, was 13.2 micrograms per cubic meter in 1991 (WDEQ 1992) and 13.1 micrograms per cubic meter in 1992 (WDEQ 1993). Both values are well below the state ambient standard of 50 micrograms per cubic meter.

Climatic factors such as prevailing winds, atmospheric stability, and mixing heights influence air quality by affecting the ability of air to disperse or dilute pollutants. Little information is currently available on inversions in the project area. Unstable conditions caused by vertical movement of air near the ground heated during the day combined with the relatively high wind speeds in the area provide conditions conducive to dispersing and diluting pollutants, thereby maintaining air quality.

A visibility study for the Green River Basin is currently being proposed by the Green River Visibility Study Steering Committee in order to address the composition and sources of a brownish elevated haze over the Basin (personal communication, February 1994, with Chuck Collins, Air Quality Division Director, WDEQ).

### 3.8.2 Noise

Studies of background noise levels have not been conducted in the project area, which is rural in nature, but would be similar to the EPA category of "Farm in Valley". Background noise levels for this category are 29 dBA during the day, 39 dBA in the evening, and 32 dBA at night. Noise is primarily from wind and traffic. Noise sensitive areas would include residences, recreation sites, raptor nests (during nesting), and elk crucial winter range (between November 15 and May 1).

## 3.9 VEGETATION/RIPARIAN/WETLANDS

### 3.9.1 Vegetation

Vegetation in the vicinity of the proposed pipeline ROW is typical of the Green River Basin, where precipitation and soil limitations are the major factors controlling production and species composition. In this semi-arid region, drought, salt, and alkaline tolerant species dominate the landscape, except along perennial water courses and at other locations where



adequate water supplies are available. Information on the vegetation types occurring along the proposed ROW was developed from field observations and the U.S. Soil Conservation Service (SCS) Technical Guide (SCS 1988). Five general vegetation types are present in the area--upland grass/sagebrush, alkaline/saltbush, lowland shrub/greasewood, riparian/lowland grass, and barren areas. In addition, some mountain shrub vegetation, especially mountain mahogany, occurs near the north end of the pipeline ROW.

The majority of the project area occurs within the upland grass/sagebrush vegetation type. This vegetation type occurs on upland areas and is dominated by Wyoming big sagebrush in the overstory and western wheatgrass in the understory. Soils in these upland areas are variable, but are generally deep soils with unfavorable subsoils and shallow to very shallow soils intermingled with deeper soils with little or no limitation (see Section 3.6). Small inclusions of the other four vegetation types occur throughout this type.

The second most common vegetation type is the alkaline/saltbush type, which is generally present in upland areas. This vegetation type is dominated by alkaline and salt tolerant saltbush, sagebrush, and greasewood species in the overstory and bottlebrush squirreltail and Indian ricegrass in the understory. Soils in these areas tend to be highly saline and/or alkaline, and generally fall into the deep soils with unfavorable subsoils type. This vegetation type occurs primarily in the northern portion of the project area.

The lowland shrub/greasewood type occurs primarily along ephemeral washes within the upland grass/sagebrush type and is dominated by salt tolerant species including greasewood, sagebrush, and saltbush in the overstory and western wheatgrass and alkali sacaton in the understory. Soils in these areas may be deep; however, the majority, as with the alkaline/saltbush type, are shallow and very shallow.

The riparian/lowland grass type occurs exclusively along the Green River. It is dominated by grass and grass-like species including bluegrasses, needlegrasses, and sedges. Some shrub

(roses, willows), forbs, and trees (cottonwoods) are also present. Soils in these areas are classified as wet and alluvial.

Barren areas occur as inclusions within the upland grass/sagebrush and alkaline/saltbush types. These areas tend to be shaley or gravelly with less than 15% aerial vegetation cover. The most common species in these areas is saltbush. Soils in these areas are generally shallow to very shallow, with slopes of >25% .

### 3.9.2 Riparian/Wetlands

Wetlands are protected under Section 404 of the Clean Water Act (33 CFR 1251 et seq.) and Executive Order (EO) 11990 and are considered sensitive and valuable resources. Maps produced for the National Wetlands Inventory (NWI) (USFWS 1991) were examined to identify potential wetlands in the project area. Formal wetland delineations have not been performed and thus the following discussion addresses potential wetland areas only.

Wetlands in the project area are most frequently found at crossings of ephemeral channels and along the Green River. In the south, the proposed route crosses the Green River and a small area (<1 acre) of palustrine (temporarily flooded) wetlands. The proposed route does not encounter potential wetlands again until it crosses Anderson Canyon in Sect. 8, T25N, R111W. North of Anderson Canyon, the route crosses an unnamed wash (Sect. 19, T26N, R111W), Steed Canyon (Sect. 7, T26N, R111W), and descends into Bird Canyon (Sect. 25, T27N, R112W). At each of these locations the potential wetlands are classified as riverine, intermittent, and temporarily flooded. The final wetland area indicated on the NWI maps that would be crossed by the proposed ROW occurs adjacent to Green River (Sect. 16, T27N, R112W) where there is a small area of temporarily flooded wetlands.

At the northern crossing of the Green River, it appears that approximately 0.5 acre of wetland may be disturbed. Conservatively assuming that each of the other five crossings



would disturb approximately 100 ft of wetland and that the construction area would be 70 ft wide, total wetland disturbance would be 1.5 acres.

The proposed route crosses Birch Creek or tributaries of Birch Creek at six locations. These locations are intermittent stream bed, and total disturbance would probably be less than one acre.

## 3.10 WILDLIFE AND FISHERIES

### 3.10.1 Big Game

Four big game mammal species occur within or immediately adjacent to the proposed project area: pronghorn; mule deer; elk; and moose.

#### 3.10.1.1 Pronghorn

Pronghorn in the proposed project area are part of two herd units, the Sublette and West Green River herds (Figure 3.3). The Sublette herd unit includes hunt areas 85 through 92, 96, and 107, and includes the project area north of the southern pipeline crossing of the Green River. The WGFD population objective for this herd is 30,000 animals, and the estimated end-of-year population in 1992 was approximately 32,811, or 109% of the objective (WGFD 1993a). The five year population average (1988-1992) is 36,376 animals, or 121% of objective. The Sublette herd has experienced a slow decrease in population as management activities have been implemented to meet the established objective. The 1992 pronghorn season resulted in a harvest of 6,277 animals from the Sublette herd.

The West Green River herd unit, which includes hunt area 93, occurs south of the southern pipeline crossing of the Green River (Figure 3.3). The WGFD population objective for this herd is 3,000 animals. Estimated end-of-year population in 1992 was 10,731 animals (358%

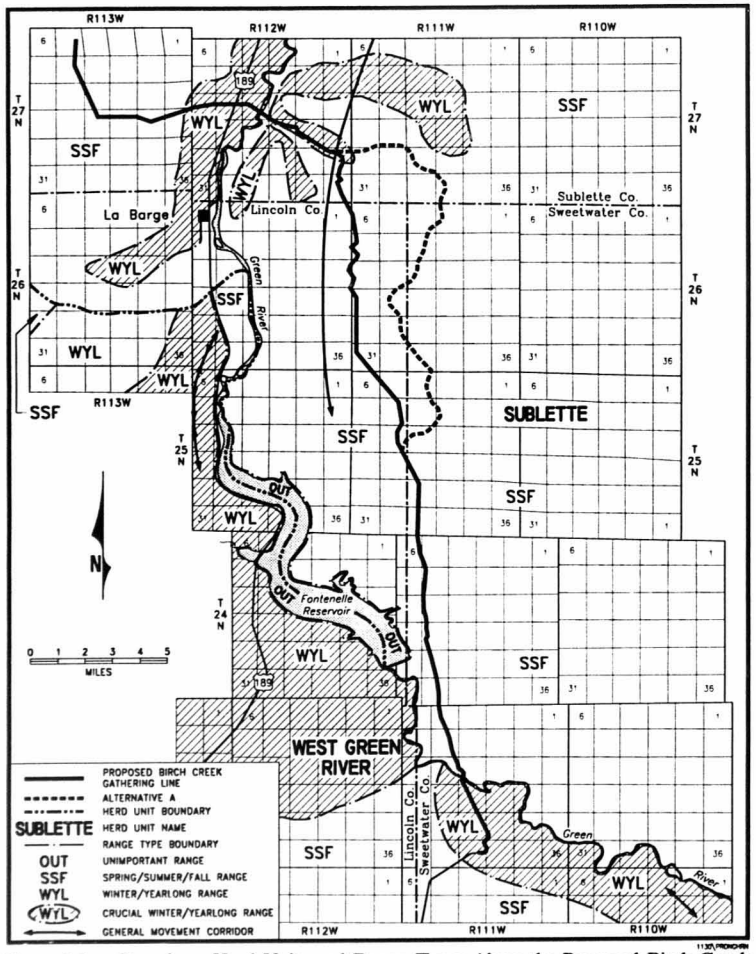


Figure 3.3 Pronghorn Herd Units and Range Types Along the Proposed Birch Creek Pipeline Route.



of objective) and the five year population average (1988-1992) was 10,490 animals (350% of objective) (WGFD 1993a). The 1992 harvest for the West Green River herd was 2,677 animals, the highest harvest on record for this herd unit.

Pronghorn habitat in both herd units in the vicinity of the project area is primarily spring/summer/fall habitat except near the Green River and in a few canyons near the Green River, where crucial winter/yearlong habitat occurs (Figure 3.3). Spring/summer/fall range is generally used between May 1 and November 30, whereas winter/yearlong range is range, a portion of which is used yearlong, but during winter has a significant influx of animals from other seasonal ranges. Crucial winter/yearlong range is winter/yearlong range that has been documented as the determining factor in a population's ability to maintain itself at a desired level over the long term (WGFD n.d.).

### 3.10.1.2 Mule Deer

Mule deer in the project area belong to three herd units--the Steamboat, Sublette, and Wyoming Range herds (Figure 3.4).

The Steamboat herd, which includes hunt areas 99 and 131, has a WGFD population objective of 4,000 mule deer (WGFD 1993a). The estimated end-of-year population in 1992 was approximately 3,219 deer, or 781 animals less than the objective (81% of objective). The five year population average (1988-1992) was 3,734 animals, or 93% of objective. Mule deer harvest during the 1992 season was 478 animals. An extremely low fawn crop in 1992 and the harsh winter of 1992-93 contributed to the relatively low population of the Steamboat herd.

The Sublette herd is composed of hunt areas 130, 138 through 142, 146, 150 through 156, and 162. The population objective for the herd is 32,000 deer, and the 1992 estimated end-of-year population was 32,618 animals (WGFD 1993b). The five year population average

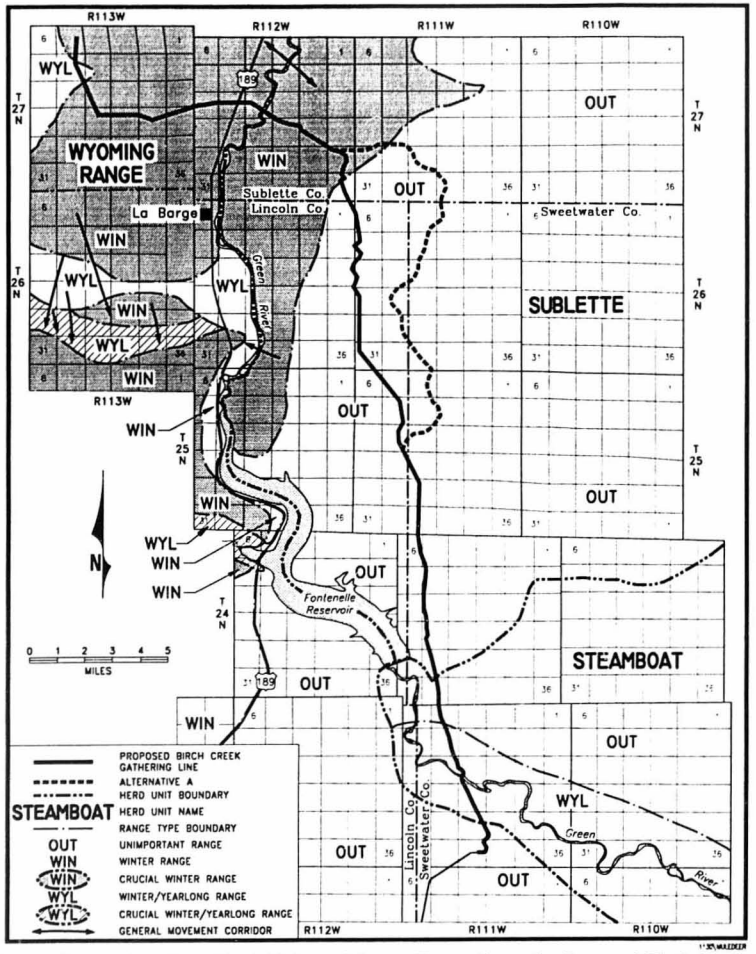


Figure 3.4 Mule Deer Herd Units and Range Types Along the Proposed Birch Creek Pipeline Route.



(1988-1992) was 32,782 deer, or 102% of objective. The 1992 harvest was 6,106 deer for the Sublette herd; however, more conservative harvest levels will likely be implemented following the severe winter of 1992-93 (WGFD 1993b).

The Wyoming Range herd includes hunt areas 134 through 137, 143 through 145, and 147. The current population objective for the herd is 38,000 deer and the estimated end-of-year population in 1992 was 34,000 animals, or 90% of objective (WGFD 1993b). The five year population average (1988-1992) is 51,072 deer, or 134% of objective. Relatively mild winters and high fawn survival between 1986 and 1991 allowed this population to increase to a level where damage was occurring to crucial range within the unit (WGFD 1993b). Harvest objectives over the past few years have been relatively high in an attempt to reduce the population size of this herd and allow the recovery of damaged crucial range.

Mule deer habitat in the project area is primarily crucial winter and winter/yearlong range in riparian areas and steeper country along the Green River, especially on the east side of the river. Crucial winter range on the west side of the Green River extends from the river to the west for several miles in this hilly country. Most of the project area east of the Green River is relatively flat sagebrush country that is out of mule deer habitat (Figure 3.4).

### 3.10.1.3 Elk

Elk in the project area belong to the Piney and West Green River herds (Figure 3.5). The Piney elk herd consists of hunt areas 92 and 94, and has a current WGFD population objective of 2,424 animals (WGFD 1993b). The estimated end-of-year population in 1992 was approximately 3,250 elk, or 826 animals (134%) over objective. The five year population average (1988-1992) is 2,785 animals, or 115% of objective. Elk harvest during the 1992 season was 803 animals.

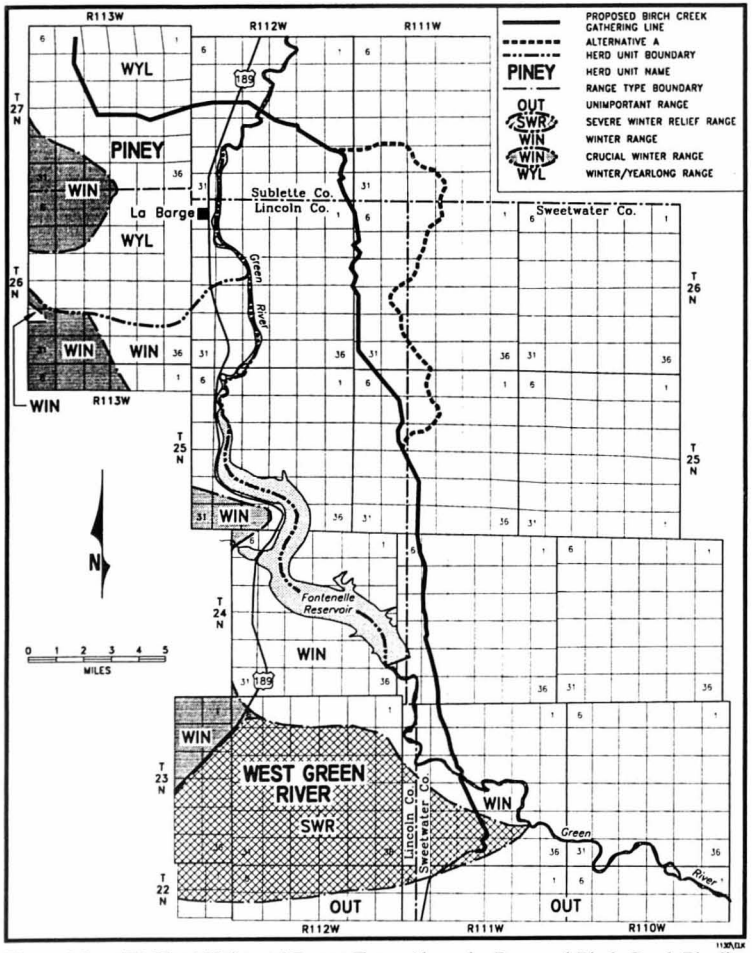


Figure 3.5 Elk Herd Units and Range Types Along the Proposed Birch Creek Pipeline Route.



The West Green River herd unit, which includes hunt areas 102 through 105, has a WGFD population objective of 3,100 (WGFD 1993a). The estimated 1992 end-of-year population was 3,400 (110% of objective), and the five year population average (1988-1992) was 3,440 animals (111% of objective). Approximately 1,194 elk were harvested from the herd during the 1992 season. Unlike the Piney elk herd, the West Green River herd does not contain permanent feed stations to sustain the population during winter months. In fact, it is the only herd unit in the Bridger-Teton National Forest that does not utilize permanent feed grounds (WGFD 1993a).

All of the project area east of the Green River is out of elk range. Some crucial winter range and severe winter relief range occurs to the west of the river (Figure 3.5). Severe winter relief range, although not considered a crucial range type, is used primarily during extremely severe winters. Severe winter relief range may lack habitat characteristics that make it attractive to, or capable of supporting, major portions of the population during normal winter conditions, but it is used by a significant portion of the population to survive extremely severe winters (WGFD n.d.).

### 3.10.1.4 Moose

Moose populations within the project area belong to the Lincoln and Sublette herds (Figure 3.6). The Lincoln moose herd includes hunt areas 26, 33, and 40, and has a WGFD population objective of 1,500 animals (WGFD 1993a). The estimated end-of-year population for 1992 was 1,190 moose--approximately 21% below objective--whereas the five year population average (1988-1992) was 1,193--approximately 21% below objective. The 1992 harvest was approximately 114 moose, of which 109 (96%) were taken in Hunt Area 26.

The Sublette herd, consisting of hunt areas 3 through 5, 10, and 20 through 25, has a population objective of 5,500 and an estimated 1992 end-of-year population of 5,704 animals,

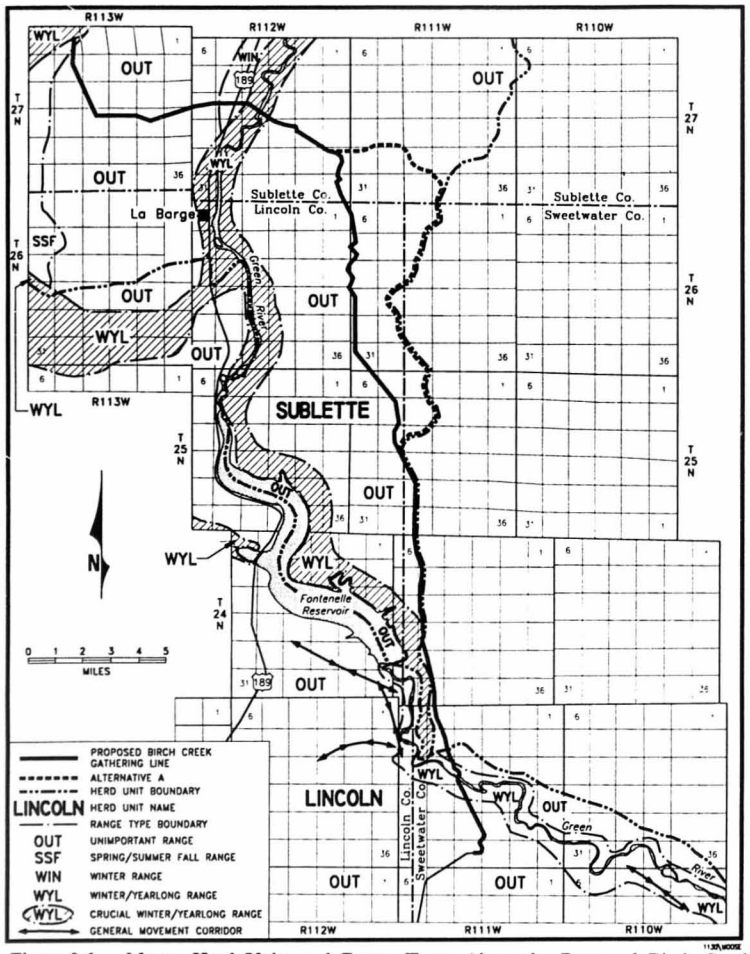


Figure 3.6 Moose Herd Units and Range Types Along the Proposed Birch Creek Pipeline Route.



or 104% of objective (WGFD 1993b). Coincidentally, the five year population average (1988-1992) is also 5,704 moose. A total of 536 moose was harvested from the Sublette herd in 1992.

Moose habitat in the project area is confined to a relatively narrow strip along the Green River and major tributaries, and is primarily winter/yearlong and crucial winter/yearlong range (Figure 3.6).

### 3.10.2 Raptors

All raptors and their nests are protected from take or disturbance under the Migratory Bird Treaty Act (16 U.S.C. 703-711) and Wyoming Statute (W.R.S. 23-1-101 and 23-3-108). Certain species are also afforded protection under the Bald Eagle Protection Act (16 U.S.C. 668-688d) and Endangered Species Act (16 U.S.C. 1513-1543).

Several raptor species nest in the project area. According to WGFD (1994) and BLM (1994) wildlife observation records, raptors that commonly nest in the area include golden eagle, red-tailed hawk, ferruginous hawk, and great horned owl. Those that occasionally nest in the area include bald eagle, Swainson's hawk, prairie falcon, American kestrel, merlin, and osprey. These birds nest primarily on the cliffs, bluffs, and trees adjacent to the Green River. Additional nesting occurs on rocky outcrops in the large canyons above the Green River (e.g., Bird and Anderson Canyons). An active osprey nest is present in a cottonwood tree next to the Bud Homestead. Most breeding species migrate to more hospitable climates during the winter; however, golden eagles and great horned owls may remain year-round. Rough-legged hawks have also been observed in the area during the winter (WGFD 1994), but they tend to move north during the breeding season. Bald eagles move into the area during the winter months, roosting and perching in cottonwood trees along the Green River from November through February. In addition to the raptor species mentioned above, several other species may frequent the area during the summer months,

including northern harrier, sharp-shinned hawk, Cooper's hawk, northern goshawk, and long-eared owl.

### 3.10.3 Upland Game Birds

Two species of upland game birds--sage grouse and mourning dove--occur in the project area. Sage grouse habitat is found in much of the project area on bottomlands and uplands (BLM 1986a, 1986c, 1992; WGFD 1994). Sage grouse leks are spring breeding areas to which birds return annually, and the area within 2 mi of a lek is considered probable nesting habitat containing the majority of nesting birds from a lek. One lek likely occurs in the project area (BLM 1986a, 1986c, 1992; WGFD 1994). Sage grouse lek surveys for this area, however, are incomplete.

Mourning dove is a common breeding bird in habitats that occur in the project area. The birds migrate from the area in the fall and winter. Mourning dove concentrations are usually highest around power lines, buildings, and other areas of human disturbance. Doves prefer the shrub-covered areas along perennial water sources, washes, and dunes that provide nesting and roosting cover.

### 3.10.4 Fisheries

Fisheries in the project area are confined to the perennial Green River, including Fontenelle Reservoir, and lower Birch Creek. The Green River is a Class 2 stream (WGFD 1991) and a Class 2 surface water (WDEQ 1990). A Class 2 stream, as designated by WGFD (1991), is a trout water that is considered to provide a fishery of statewide importance. WDEQ (1990) defines a Class 2 surface water as that which presently supports game fish populations and includes nursery areas or food sources for these populations. Game fish species in the Green River include brown trout, rainbow trout, cutthroat trout, kokanee, mountain whitefish, and smallmouth bass. A run of kokanee occurs both above and below



Fontenelle Reservoir in the Green River during late August and late November. Nongame fish occurring in the Green River include several species of chub (e.g., creek, lake, Utah, roundtail), sucker (e.g., flannelmouth, mountain, bluehead), redside shiner, speckled dace, fathead minnow, and mottled sculpin (Baxter and Simon 1970). Several of these nongame fish species also likely occur in lower Birch Creek below the project area, a WDEQ Class 3 surface water. A WDEQ Class 3 surface water is one that supports nongame fish populations only (WDEQ 1990). Game fish in Fontenelle Reservoir, a WDEQ Class 2 surface water, include rainbow trout, brown trout, mountain whitefish, and smallmouth bass.

### 3.10.5 Other Species

#### 3.10.5.1 Mammals

Based upon range and habitat preference (Clark and Stromberg 1987; WGFD 1992) and WGFD (1994) observation records, 48 mammal species are likely to occur in the project area. Predator species include coyote, red fox, raccoon, long-tailed weasel, mink, badger, western spotted skunk, striped skunk, mountain lion, bobcat, and black bear. Lagomorph species include desert cottontail, mountain cottontail, pygmy rabbit, and white-tailed jackrabbit. Other small mammals present would likely include least chipmunk, ground squirrels (e.g., Wyoming, Uinta, golden-mantled), white-tailed prairie dog, northern and Idaho pocket gophers, Ord's kangaroo rat, beaver, muskrat, deer mouse, northern grasshopper mouse, bushy-tailed woodrat, voles (montane, long-tailed, sagebrush), and porcupine. Several species of shrews (masked and Merriam's) and bats (little brown myotis, silver-haired bat) are also likely to occur.

#### 3.10.5.2 Birds

Common bird species potentially occurring in the project area, based upon range and habitat preference (Scott 1987; WGFD 1992) and WGFD (1994) observation records, include ring-

billed and California gulls, belted kingfisher, common nighthawk, Say's phoebe, western kingbird, horned lark, swallows (violet-green, barn), black-billed magpie, common raven, American crow, rock wren, mountain bluebird, loggerhead shrike, yellow and yellow-rumped warblers, Brewer's sparrow, vesper sparrow, sage sparrow, lark bunting, McCown's longspur, red-winged blackbird, western meadowlark, Brewer's blackbird, common grackle, and brown-headed cowbird.

Several species of wading/shore birds and waterfowl may occur along the Green River, lower Birch Creek, and Fontenelle Reservoir (WGFD 1992, 1994), including Wilson's phalarope, white-faced ibis, sandhill crane, great blue heron, snowy egret, killdeer, long-billed dowitcher, common snipe, and spotted sandpiper. Waterfowl occurring in the area include western grebe, American coot, Canada goose, mallard, green-winged teal, northern pintail, northern shoveler, gadwall, American wigeon, common and Barrow's goldeneyes, redhead, lesser scaup, bufflehead, and common merganser. Any of these species may occasionally nest within the area.

3.10.5.3 Amphibians and Reptiles

Based on range and habitat preference (Stebbins 1966; Baxter and Stone 1980), four amphibian and three reptile species are likely to occur in the project area. Amphibian species include tiger salamander, Great Basin spadefoot, chorus frog, and leopard frog. This species would occur primarily in and adjacent to ephemeral, intermittent, and perennial water habitats. Reptile species include sagebrush lizard, short-horned lizard, and western terrestrial garter snake.

## 3.11 WILD HORSES

The Wild Free-Roaming Horses and Burros Act of 1971 prohibits the capture or harassment of wild free-roaming horses and burros on BLM and U.S. Forest Service (USFS) lands.



Protected horses and burros are to "be considered...an integral part of the natural system of the public lands", on areas where they were found in 1971 and are to be managed under the multiple use concept (16 U.S.C. 1331-1340, 1976 & Suppl. V 1981; Bean 1983).

The Little Colorado Desert Interim Wild Horse Herd Management Area (IWHHMA) is bounded on the west by the Green River and Fontenelle Reservoir, and encompasses a total area of 619,541+ acres in southwestern Wyoming, including all of the project area east of the Green River. This IWHHMA includes the area referred to as the South Desert-Figure Four IWHHMA (BLM 1992). Wild horses within the Little Colorado Desert IWHHMA are managed by the BLM Green River Resource Area (BLM 1992). The Green River Resource Area also manages the White Mountain WHHMA, which is located immediately south of the Little Colorado Desert IWHHMA.

The established appropriate management level for the Little Colorado Desert IWHHMA is 100 horses. The current population (May 1994) is 94 animals. Fifty-one horses were removed from the population during a recent roundup. Range condition within the Little Colorado Desert IWHHMA is generally considered fair at best, and water tends to limit the distribution, although not the population, of wild horses. Available wells and springs are clustered together, and oil and gas development limits wild horse access to Fontenelle Reservoir.

The Desert and La Barge WHHMAs, which are located north and east of the Little Colorado Desert IWHHMA and described in the *Pinedale Resource Area Draft Resource Management Plan/Environmental Impact Statement* (BLM 1986c), no longer exist. There were either too few horses for the areas to be considered a viable WHHMA, or horses were removed during past roundup operations.

### 3.12 THREATENED, ENDANGERED, AND CANDIDATE SPECIES

The Endangered Species Act protects federally listed threatened and endangered (T&E) plant and animal species and their critical habitats. Plant and animal species which are federal candidates for listing as threatened or endangered are not protected under the Endangered Species Act of 1973, but are provided protection by the BLM under the guidelines of BLM Manual section 6840. Under these regulations, the BLM is directed to ensure that actions authorized, funded, or carried out by the agency do not contribute to the need to list these species as Threatened or Endangered.

The USFWS was contacted to initiate informal consultation and obtain a list of T&E species potentially present in the area (Appendix E). Bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), whooping crane (*Gus americans*), and black-footed ferret (*Mustela nigripes*) are the only T&E species that may occur in or adjacent to the project area; however, numerous candidate species for federal listing may occur in the area. Since no surface water withdrawals would occur as a result of the proposed project, endangered fish species of the Colorado River system (i.e., Colorado squawfish [*Ptychocheilys lucius*], humpback chub [*Gila cypha*], bonytail chub [*Gila elegans*], and razorback sucker [*Xyrauchen texanus*]) are not addressed.

At least three known bald eagle nests are located near the southern ROW crossing of the project area along the Green River (WGFD 1994), and bald eagles commonly use stands of large cottonwoods along the Green River for roosting from November to February. Bald eagles use these cottonwood tree roosts and perches to search for potential prey, which includes kokanee, brown trout, and waterfowl while the water is open, and carrion once freeze up occurs (BLM 1986c, 1992).

No known peregrine falcon nests occur in the project area, although the area may be used occasionally for hunting by wintering or migrating peregrines. The Green River is



apparently used as a spring and fall migration corridor as peregrine falcons move to and from the Greater Yellowstone ecosystem (BLM 1986c, 1992).

Whooping cranes have been observed several miles southeast of the project area on lands adjacent to the Green River, but none have been recorded adjacent to the ROW itself (WGFD 1994). Whooping cranes usually frequent riparian habitats consisting of grasses, sedges, and willows found in irrigated and natural wet meadows (BLM 1986c). Most observations of migrating whooping cranes in the region have occurred at wetlands in the Farson area (BLM 1992).

No confirmed black-footed ferret sightings have been recorded on the project area. Historically, a single black-footed ferret observation was made several miles southeast of the southern terminus of the ROW (Wyoming Natural Diversity Data Base 1994). However, white-tailed prairie dog colonies are scattered along the ROW route and could provide a potential prey base and habitat for black-footed ferrets. Prairie dog colonies east of the Green River are considered to be of such small size and low density that they are unlikely to support black-footed ferrets. However, prairie dog colonies on the west side of the Green River may be large enough and of sufficient density to support ferrets as defined in USFWS guidelines (USFWS 1989).

Mountain plover, a category 1 candidate species, have not been observed in the project area, but do inhabit areas similar to those present in the area (i.e., upland and lowland grasslands). Category 1 candidate species are those for which the USFWS has sufficient data to list as T&E, but for which proposed rules have not yet been issued.

One species of mammal (North American lynx), five species of birds (trumpeter swan, white-faced ibis, ferruginous hawk, northern goshawk, and loggerhead shrike) and two species of fish (flannelmouth sucker and roundtail chub) are category 2 candidate species that potentially occur in the project area. Category 2 candidate species are those that are being

considered for listing, but for which sufficient data are not available for a listing decision. A single observation of a North American lynx several miles east of the central project area (WGFD 1994) was probably that of a transient individual, since lynx are normally found in high mountain habitats with extensive tracts of coniferous forest (Clark and Stromberg 1987). A single trumpeter swan observation along the Green River (WGFD 1994) is also likely that of a vagrant individual, since most of these birds in Wyoming occur in the Greater Yellowstone ecosystem. White-faced ibis frequent freshwater marshes, wet meadows, and aquatic areas in Wyoming, and those observed along the Green River in the project area were probably foraging briefly in the area during migration. Ferruginous hawks probably hunt over much of the area, although only a single nest has been observed in the vicinity of the proposed ROW (WGFD 1994). Northern goshawk have been observed perched in cottonwoods along the Green River and lower Birch Creek; however, no nests have been observed (WGFD 1994). Loggerhead shrikes have been observed in the project area (WGFD 1994), and the species is a fairly common summer resident (WGFD 1992). Flannelmouth suckers and roundtail chub have been recorded from both the Green River and Fontenelle Reservoir (WGFD 1994).

One observation of a long-billed curlew, a Category 3C species, several miles east of the southern portion of the project area (WGFD 1994) was not that of a breeding individual, although some potential breeding habitat for this species (upland grassland) may occur on or adjacent to the project area. Category 3C Candidate species are those that were once considered for listing as T&E but now no longer receive such consideration, because they are more widespread or abundant than previously believed or are not subject to identifiable threats. For the most part, curlews observed on the project area are likely using the area for foraging or as a stopover during migration and are probably in the area for only short periods of time.

No federally listed T&E plant species are known to occur in the project area. Several populations of bastard draba milkvetch (*Astragalus drabelliformis*), a category 2 candidate

species, occur west of the Green River in the vicinity of the proposed pipeline ROW (WNDDB 1994). This species favors rocky hills and ridges (Dorn 1988) and is found in various plant communities, including black sagebrush, bluebunch-wheatgrass, and big sagebrush-rabbitbrush (WNDDB 1994). Other category 2 species that could occur along the ROW include: Opal phlox (*Phlox opalensis*), which occurs on barren, rocky clay soils associated with Gardner's saltbush communities; Cedar Rim thistle (*Cirsium aridum*), which occurs in fine-textured sandy-shaley slopes in draws and on gravelly slopes: large-fruited bladderpod (*Lesquerella macrocarpa*), which is found on loose clay soils in desert shrub communities; contracted Indian ricegrass (*Oryzopsis contracta*), found in sandy soils in sagebrush-grasslands (USFWS petitioned to downlist to 3C, and BLM given permission to manage as 3C beginning summer 1994); and Ownbey's thistle (*Cirsium ownbeyi*), which occurs in sparsely vegetated desert shrub communities on steep, shaley slopes. Two 3C species that could occur include tufted twinpod (*Physaria condensata*), which is found on sparsely vegetated shale slopes and ridges, and Swallen's mountain ricegrass (*Oryzopsis swallenii*), which occurs on sandy, calcareous soils in sagebrush-grasslands. Tufted twinpod has been recorded in the project area (WNDDB 1994).

### 3.13 LIVESTOCK GRAZING MANAGEMENT

Six grazing allotments are located in the general vicinity of the proposed and alternative pipeline ROWs (Table 3.4). These include: the Seedskadee and Slate Creek allotments in the Kemmerer Resource Area; the North La Barge Common allotments in the Pinedale Resource Area; and the Lombard, 18-Mile, and Figure Four allotments in the Green River Resource Area. The size, total animal unit months (AUM), acres per AUM, and use by season and type of livestock (cattle, sheep, and/or horse) for these six allotments are presented in Table 3.4.



Table 3.4 Grazing Allotments Crossed by the Proposed Birch Creek Pipeline Route.

| Name of Allotment | Size (acres) | Active Preference AUMs | Acres/AUM | Livestock Type | Season of Use |
|---|---|---|---|---|---|
| **Pinedale Resource Area** | | | | | |
| North La Barge Common | 131,713 | 19,398[1] | 7 | Cattle | 5/15 - 10/31 |
| **Green River Resource Area** | | | | | |
| Lombard | 94,192 | 6,643 | 14 | Sheep/cattle | Spring/ summer/fall/ winter |
| 18-Mile | 228,840 | 18,994 | 12 | Sheep/cattle | Spring/ summer/fall/ winter |
| Figure Four | 114,425 | 6,644 | 17 | Cattle | Spring/ summer/fall/ winter |
| **Kemmerer Resource Area** | | | | | |
| Seedskadee | 12,555 | 785 | 16 | Sheep<br>Cattle | 5/1 - 12/31<br>7/1 - 12/15 |
| Slate Creek | 271,170 | 12,293 | 22 | Sheep<br>Cattle | 4/26 - 11/30<br>5/8 - 10/31 |

[1] Total AUMs (includes federal and state lands).

### 3.14 RECREATION

Recreational activity in the project area is primarily hunting and, along the Green River, fishing. Camping areas are located along the Green River corridor as well. Fontenelle Reservoir provides a significant amount of camping, fishing and boating opportunity, but would not be impacted by the proposed pipeline. The Green River is considered a trout stream of statewide importance (Class 2) by the WGFD (WGFD 1991), and below Fontenelle Reservoir provides some excellent fishing for trout and kokanee. Kokanee move upstream from Flaming Gorge Reservoir to the tailwaters of Fontenelle Reservoir each fall.

### 3.15 VISUAL RESOURCE MANAGEMENT

The areas adjacent to the Green River are included in Visual Resource Management (VRM) Class II, where the objective is to retain the existing character of the landscape, and the level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. The remainder of the area would be Class IV, the objective of which is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high, and management activities may dominate the view; however, the change should repeat the basic elements (form, line, color, and texture) inherent in the characteristic landscape.



## 4.0 ANALYSIS OF THE PROPOSED ACTION AND ALTERNATIVES

A summary of impacts from the proposed action, Alternative A, and the No Action Alternative is presented in Table 4.1. No impacts would occur to geology/minerals; therefore, the recourse is not further addressed.

### 4.1 SURFACE OWNERSHIP/USE

Any action that would result in a land use not in conformance with those allowed by applicable county, state, or federal land use plans would be considered a significant impact.

#### 4.1.1 The Proposed Action

There would be no change in surface ownership as a result of the proposed action, nor would there be any change in land use, which would remain oil and gas production, livestock grazing, wildlife habitat, and recreation.

#### 4.1.2 Alternative A

Impacts would be the same as for the proposed action.

#### 4.1.3 No Action Alternative

Impacts would be the same as for the proposed action.

#### 4.1.4 Mitigation

No additional mitigation.

Table 4.1 Summary of Impacts from the Proposed Action and Alternatives.

| Resource | Impacts | | |
|---|---|---|---|
| | Proposed Action | Alternative A | No Action Alternative |
| Surface Ownership/Use | No impacts | No impacts | No impacts |
| Socioeconomics | Employment for some residents for 2 mo.; property taxes increased by $17,000/yr; additional sales tax revenues of $77,500; payroll of $1,983,000 | Same as for proposed action, but some increases in economic benefits due to longer route | No economic benefits to area |
| Cultural Resources | Potential to impact resources on 39.5 mi (377 acre) ROW. Class I survey indicated 27 sites. | Potential to impact resources on 44.1 mi (408 acre) ROW. Class I survey indicated 31 sites. | No impacts |
| Geology/Minerals | No impacts | No impacts | No impacts |
| Paleontology | No impacts likely | Same as proposed action | No impacts |
| Soils/Watershed | ROW disturbance to 368.8 acres (108.8 acres of deep soils with unfavorable subsoils; 3.2 acres of wet alluvail soils with water; 19.2 acres of shallow/very shallow soils, slopes >25%; 107.7 acres of shallow/very shallow soils, slopes <25%; and 129.8 acres of deeper soils with little or no limitation), plus 7.8 acres for permanent facilities and staging areas, for a total of 376.6 acres | ROW disturbance to 400.4 acres (95 acres of deep soils with unfavorable subsoils; 3.1 acres of wet alluvail soils with water; 8.1 acres of shallow/very shallow soils, slopes >25%; 138.4 acres of shallow/very shallow soils, slopes <25%; and 155.8 acres of deeper soils with little or no limitation), plus 7.8 acres for permanent facilities and staging areas, for a total of 408.2 acres | No surface disturbance |
| Water Resources | Low short-term impacts | Same as for proposed action | No impacts |
| Air Quality/Noise | Low short-term impacts | Same as for proposed action | No impacts |



Table 4.1 (Continued)

| Resource | Impacts | | |
|---|---|---|---|
| | Proposed Action | Alternative A | No Action Alternative |
| Vegetation/Riparian/ Wetlands | Vegetation removal on 376.6 acres; low short-term impacts to riparian/wetlands | Vegetation removal on 408.2 acres; low short-term impacts to riparian/wetlands | No impacts |
| Wildlife and Fisheries[1] | Disturb 376.6 acres pronghorn range (63 acres crucial); disturb 167 acres mule deer range (122 acres crucial); disturb 111 acres elk range (none crucial); disturb 38 acres moose range (10 acres crucial); low impacts to other species | Disturb 408.2 acres pronghorn range (95 acres crucial); disturb 173 acres mule deer range (128 acres crucial); disturb 111 acres elk range (none crucial); disturb 38 acres moose range (10 acres crucial); low impacts to other species | No impacts |
| Wild Horses | No impacts | No impacts | No impacts |
| T&E Species | No impacts | Same as proposed action | No impacts |
| Special Status Plants | Impacts could occur if not avoided | Same as proposed action | No impacts |
| Livestock and Grazing Management | 33 AUMs affected | 35 AUMs affected | No impacts |
| Recreation | No impacts | No impacts | No impacts |
| Visual Resource Management | No impacts | No impacts | No impacts |

[1] Acreage of crucial habitats for various big game species are not additive. The same acre of habitat may be crucial habitat for more than one species.

## 4.2 SOCIOECONOMICS

An increase in demand for temporary housing or for local government facilities or services in excess of availability would be a significant impact.

### 4.2.1 The Proposed Action

The proposed action would provide employment for some residents of the area for a period of about two months. Property taxes generated to the three counties in which the pipeline would be located (Sweetwater, Lincoln, and Sublette) would be about $17,000 annually. In addition, state sales tax for materials and supplies used in pipeline construction would be approximately $77,500, a portion of which would be returned to the counties.

The project would also provide employment for about 30 nonresidents of the area during the construction phase of the pipeline. Their economic activity during that time would add to the local economy. Additional pressure would be put on an already scarce supply of temporary housing, but contractors would be responsible for providing temporary housing for imported workers in existing motels and/or mobil homes. Although mobil homes are scarce in the area, space is available for trailers that could be moved in temporarily during the construction period. No significant or long-term demands for local government facilities or services would occur.

Impacts to roads in the project area would be short-term and minimal. No new roads would be constructed, and any damage to existing roads as a result of the project would be repaired. All necessary permits for use of roads would be obtained from State and local authorities.



The proposed action would not have adverse impacts on the socioeconomics of the project area. In fact, beneficial effects would result from the increased economic activity and its positive affect on the area.

### 4.2.2 Alternative A

Impacts to socioeconomics from Alternative A would generally be similar to those for the proposed action. Since Alternative A is approximately 4.5 mi longer than the proposed action, there would be some additional payroll and property tax revenue generated annually to Sublette and Sweetwater Counties, and some additional sales tax monies due to an increase in the amount of materials and supplies purchased.

### 4.2.3 No Action Alternative

The No Action Alternative would deny the increased economic activity and tax base that would be generated by the proposed action or Alternative A. There would be no additional demands on temporary housing due to pipeline construction.

### 4.2.4 Mitigation

No additional mitigation.

## 4.3 CULTURAL RESOURCES

Significant impacts to cultural resources would include:

- loss of cultural resources that are eligible for the National Register of Historic Places (NRHP);
- failure to comply with BLM procedures implementing federal cultural resource management practices;

- any surface disturbing activities within 0.25 mi of a historic trail, unless such disturbance would not be visible from the trail or would occur in an existing visual intrusion within the buffer; and
- disturbance of important sites of religious or cultural significance to Native American.

### 4.3.1 The Proposed Action

Impacts to cultural resources could be direct or indirect. Direct impacts would be mitigated following procedures specified in 36 CFR 800 (see Figure 2.4). Class III inventories would be conducted on all state and federal lands and on private lands affected by federal undertakings. All resources identified in Class III surveys would be evaluated for eligibility to the NRHP in consultation with the BLM and SHPO. Eligible or listed sites identified in the Class I and Class III inventories would be avoided, where possible, as would areas with high potential for significant cultural deposits, such as sand dunes or alluvial terraces. A qualified archaeologist would monitor construction and observe the open pipeline trench in areas having high potential for archaeological sites if such areas cannot be avoided. If any NRHP (eligible or listed) prehistoric sites cannot be avoided, a data recovery program would be implemented. Construction activities would be field checked occasionally by a qualified BLM archaeologist if so ordered by BLM's AO. If historic or prehistoric materials are discovered during construction, all activities within a 100 ft radius of the site would cease immediately, and the AO would be notified by Questar or its subcontractor to assure proper handling of the discovery by qualified archaeologists.

Indirect impacts would be negligible since inventories and monitoring would locate most significant sites within and adjacent to the pipeline ROW. All field personnel would be informed of the importance of cultural resources and the regulatory obligations to protect them, including confidentiality of site locations and the prohibition against collection of cultural materials.



The Sublette Cutoff of the Oregon Trail would be crossed by the ROW. The BLM and SHPO have determined that intact segments of the Trail meet the eligibility criteria for the NRHP. However, the proposed crossing would occur at an existing visual intrusion (an existing road and pipeline ROW) within the buffer and would not disturb the trail itself (see Section 2.1.8.8 and Figure 2.7). The local representative of the Oregon-California Trails Association indicated he was familiar with all proposed trail crossings, found no impacts, and recommended the proposed route of the pipeline ROW (personal communication, April 1994, with Bob Rennells, Oregon-California Trails Association) (Appendix D).

No religious or culturally important areas for Native American groups have been identified in the project area to date. If any such sites are identified, the BLM would review the potential impacts on a site-specific basis to determine what measures are necessary to prevent or mitigate significant impacts to the religious or culturally important areas.

The Class III surveys to determine the presence of eligible cultural resources and mitigation required to comply with existing regulations and stipulations would assure that impacts to cultural resources due to the development of the proposed pipeline would be negligible.

### 4.3.2 Alternative A

Impacts to cultural resources from Alternative A would be similar to those from the proposed action. The crossing of the Sublette Cutoff of the Emigrant trail would occur in a different location (along County Line Road in SW¼ Section 9, T26N, R111W rather than in SE¼ Section 18, T26N, R111W).

### 4.3.3 No Action Alternative

Under the No Action Alternative no additional disturbance of cultural or historical resources would occur as a result of this pipeline.

#### 4.3.4 Mitigation

No additional mitigation.

### 4.4 PALEONTOLOGY

A significant impact would occur if any fossils considered important for scientific purposes would be destroyed.

#### 4.4.1 The Proposed Action

There would be no significant adverse impacts to paleontological resources from the proposed action because most of the excavation for the pipeline would not penetrate bedrock. In those portions where bedrock would be penetrated, construction would cease if any paleontological resources would be uncovered, a determination of significance would be made by a qualified paleontologist, and a recovery or avoidance plan would be developed.

#### 4.4.2 Alternative A

Impacts from Alternative A would be similar to those for the proposed action. No significant impacts would occur. Less bedrock would be penetrated under Alternative A, reducing the chances of encountering paleontological resources.

#### 4.4.3 No Action Alternative

Under the No Action Alternative, no additional surface disturbance from the proposed project would occur and no paleontological resources would be disturbed.



#### 4.4.4 Mitigation

No additional mitigation.

### 4.5 SOILS/WATERSHEDS

Impacts to soils would be considered significant if a reduction in soil productivity and/or increased erosion would prevent successful reclamation and revegetation.

Deep soils with unfavorable subsoils have lower reclamation potential due to subsoils that are saline/alkaline, highly calcareous, and/or gravelly. Eroded sediment from these soils can adversely affect water quality. Salvage and replacement of the more suitable topsoil layers would encourage revegetation and reduce the potential for saline/alkaline runoff.

Disturbance of wet alluvial soils and water adjacent to the Green River, the river banks, and river bed increase the chances for sediment movement in the river. If these soils are compacted, soil permeability and productivity may be reduced, and capillary action in subirrigated soils could be reduced. Scarification could help restore permeability, and construction of stream crossings during low flows would minimize adverse impacts to these soils.

Construction on shallow and very shallow soils with slopes steeper than 25% would be difficult and would require additional work space, sidehill cuts, and surface disturbance to safely construct project components. Construction on slopes greater than 25% could result in: difficult excavation in shallow soils over hard sandstone; a larger area of disturbance with greater erosion potential; an increased probability to lose, mix, or bury critical topsoil resources during construction; and increased difficulty in returning slopes to their approximate original contours.

Mitigation of impacts to steep slopes requires proper replacement of soil in the ditch to reduce the possibility of soil erosion, special care in topsoil salvage and replacement, and implementation of special erosion control techniques and reclamation measures. As reported in the Northwest Pipeline Corporation Saddle Ridge Project Environmental Assessment and Finding of No Significant Impact (BLM 1993, p.4-22), "In recent years, by employing good construction and reclamation techniques, pipeline construction has occurred successfully on slopes in excess of 25 percent in the project area with a minimum of environmental impact." Photo 4.1 shows the existing FMC pipeline ROW in Steed Canyon. Photo 4.2 shows the hillside in Steed Canyon that would be traversed by the proposed action.

Excavation of shallow and very shallow soils on less than 25% slopes may be difficult over hard sandstone bedrock. Shallow soils have low productivity and can be difficult to reclaim because of their limited water storage capacity. Mitigation of impacts requires special care in topsoil salvage and replacement, and special erosion control techniques may be required on some slopes, such as mulching and water bar installation. Reclamation of the deeper soils with little or no limitations that are intermingled with these shallow to very shallow soils would present no problems.

### 4.5.1 The Proposed Action

The proposed action would disturb a total of 376.6 acres for pipeline ROW and staging areas. Thirty-five percent of the length of the ROW would be on deeper soils with little or no limitations, whereas the remainder (65%) would be on soils with various limitations as discussed in Section 3.6 (Table 4.2). There would be a short-term increase in wind and water erosion until the land was stabilized and revegetated. However, visual inspection of existing pipelines in the immediate vicinity of the proposed action indicates that known reclamation measures and revegetation techniques can mitigate potential adverse impacts due to surface disturbance. By using the reclamation and revegetation techniques described



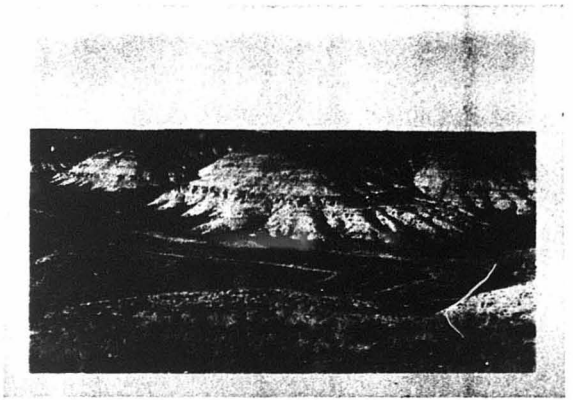

Photo 4.1 Location Where Proposed Action ROW Would Descend from North into Steed Canyon. Existing FMC Pipeline ROW Can Be seen Circling from Left to Right Around Central Knob. Proposed Birch Creek Pipeline Would Descend to Right of Central Knob (See Photo 4.2 for Detail).

Photo 4.2 Location Where Proposed Action ROW Would Descend from North into Steed Canyon. This is a Close-up of the Area Just to the Right of the Central Knob in Photo 4.1.

Table 4.2 Acreage of Various Soil Types Disturbed by the Proposed Action and Alternative A.

| Soil | Proposed Action | | Alternative A | |
|---|---|---|---|---|
| | Linear Feet[1] | Acreage (%)[2] | Linear Feet[1] | Acreage (%)[2] |
| **Pipeline ROW** | | | | |
| Deep soils with unfavorable subsoils | 61,600 | 112.4 (30) | 55,200 | 98.6 (24) |
| Wet alluvial soils with water | 1,800 | 4.6 (1) | 1,800 | 4.6 (1) |
| Shallow/very shallow soils, slopes >25% | 10,900 | 19.2 (5) | 4,700 | 8.1 (2) |
| Shallow/very shallow soils, slopes <25% | 61,000 | 110.5 (29) | 80,400 | 141.2 (35) |
| Deeper soils with little or no limitation | 73,460 | 129.8 (35) | 90,488 | 155.8 (38) |
| Total | 208,760 | 376.6 (100) | 232,588 | 408.2 (100) |

[1] ROW only; does not include staging areas and permanent facilities.
[2] Acreage includes staging areas and permanent facilities.

in Appendices A and B, no major adverse impacts to soils would be likely to occur as a result of the proposed action.

#### 4.5.2 Alternative A

Alternative A would have similar types of impacts to the various soil types as would the proposed action, and the same short-term increases in wind and water erosion would occur until the disturbed areas are stabilized and revegetated. Alternative A would disturb a total of 408.2 acres of pipeline ROW and staging areas, of which 38% would be on deeper soils with little or no limitations. The remaining 62% would be on soils with various limitations as discussed in Chapter 3.6 (Table 4.1). Alterative A would disturb more shallow/very



shallow soils on slopes <25% than would the proposed action; however, it would disturb 4,700 ft of shallow/very shallow soils in slopes >25% as compared to 10,900 ft of such soils in the proposed action.

#### 4.5.3 No Action Alternative

No surface disturbance would occur under the No Action Alternative; therefore, no impacts to soils/watersheds would result.

#### 4.5.4 Mitigation

The applicant may be required to lay the pipeline on the ground surface in areas where slopes exceed 25%, rock outcrops occur, or highly erosive soils exist.

### 4.6 WATER RESOURCES

Significant impacts to surface waters would occur if any ambient water quality standards would be violated or if project activities resulted in a downgrading of the existing WDEQ or WGFD stream classification.

#### 4.6.1 The Proposed Action

The proposed action would not cause significant adverse impacts to surface waters, groundwater, or floodplains. Impacts to surface waters would result primarily from pipeline crossings of the Green River and from surface disturbance prior to reclamation and revegetation. These impacts would include increased siltation/sediment loading in the Green River and Fontenelle Reservoir. These impacts would be short-term and low. No violations of EO 11988 would occur. Impacts to floodplains would be short-term and low.

#### 4.6.2 Alternative A

Impacts to the Green River due to pipeline crossings of the river under Alternative A would be similar to those described in the proposed action. Soil erosion and sediment loading to the Green River and Fontenelle Reservoir from upland sites may be reduced under Alternative A, as less disturbance to soils in drainages and on steep slopes would occur.

#### 4.6.3 No Action Alternative

No surface disturbance would occur in the No Action Alternative; therefore, no impacts to water resources would result from this alternative.

#### 4.6.4 Mitigation

No additional mitigation.

### 4.7 AIR QUALITY/NOISE

Violation of State or Federal ambient air quality standards would be considered a significant impact, as would long-term exceedence of federal standards for noise (55 dBA) at existing residences or other noise-sensitive areas.

#### 4.7.1 The Proposed Action

Construction activities would produce small amounts of exhaust from vehicles and equipment, as well as increased amounts of airborne dust from traffic and other surface-disturbing activities. These emissions would vary from day to day depending upon the level of activity, the type of activity, and the weather. They would be short-term and end with the completion of construction activities in approximately two months. Operations and



maintenance would not result in significant increases in pollution over existing levels. Therefore, impacts to air quality from the proposed action would be short-term and low.

Similar impacts would occur with noise levels. Short-term sound levels during construction would exceed existing background levels of 32 dBA; however, there are no residences along the proposed ROW, raptor nests would not be occupied in September and October, and construction activities would precede the arrival of big game animals on crucial winter range. Impacts to noise would be short-term and minor.

#### 4.7.2 Alternative A

Impacts to both air quality and noise from Alternative A would be similar in kind to those from the proposed action. Since Alternative A is approximately 4.5 mi longer than the proposed action, impacts would occur over a larger area. However, impacts to both air quality and noise levels would still be short-term and minor.

#### 4.7.3 No Action Alternative

Under the No Action Alternative both air quality and noise levels would continue at their existing levels, with changes dependent upon other activities unrelated to the proposed pipeline.

#### 4.7.4 Mitigation

No additional mitigation.

## 4.8 VEGETATION/RIPARIAN/WETLANDS

Any long-term loss of wetland or riparian habitat, or violation of EO 11990 (Protection of Wetlands), would be considered a significant impact.

### 4.8.1 The Proposed Action

The proposed action would disturb about 377 acres of vegetation, of which only about 0.6 acres would not be reclaimed and revegetated shortly after disturbance. Most of the disturbance would be to native vegetation, but in 27.4 mi (66.4 acres) of the ROW that parallel existing pipelines, up to 20 ft of the disturbance would occur on previously disturbed surfaces. Vegetative density and species composition would be altered on disturbed areas, resulting in more grass and forb species until shrubs become reestablished. Implementation of proposed reclamation and revegetation procedures would control erosion and expedite revegetation, and no significant adverse effects would occur. Areas of mountain shrub would be avoided or replaced with containerized mountain mahogany.

Riparian areas and wetlands crossed by the pipeline would be limited to the two Green River crossings and crossings of Birch Creek and ephemeral washes. Two crossings of Birch Creek would be spanned to mitigate disturbance. Disturbance at other Birch Creek crossings, and crossings of ephemeral washes, would be minimal and mitigated according to conditions specified in the Section 404 permit obtained from the U.S. Army Corps of Engineers.

### 4.8.2 Alternative A

The type of disturbance under Alternative A would be similar to that in the proposed action. Alternative A would disturb about 408 acres of vegetation, of which all but about 0.6 acres would be reclaimed and revegetated shortly after disturbance. The alternative



portion of this route would parallel existing pipelines for approximately 20,050 ft (3.8 mi); however, this route would parallel an existing road throughout its length. With the implementation of proposed reclamation and revegetation procedures, no significant adverse affects would occur.

Riparian areas and wetlands crossed by the pipeline would be limited to the same crossings of the Green River and Birch Creek as in the proposed action. Ephemeral washes in Steed Canyon, Anderson Canyon, etc. would not be crossed. All disturbance at crossings would be minimal and mitigated according to conditions specified in the Section 404 permit obtained from the U.S. Army Corps of Engineers.

### 4.8.3 No Action Alternative

Under the No Action Alternative there would be no disturbance of vegetation, riparian areas, or wetlands.

### 4.8.4 Mitigation

To stabilize soils and to provide for forage for livestock, wild horses and wildlife, the following seed mix could be used in the reclamation of disturbed upland sites: western Wheatgrass (Rosana), *Elymus smithii*, 4 lbs/acre; bluebunch Wheatgrass, *Elymus spicatum*, 3 lbs/acre; Indian ricegrass, *Oryzopsis hymedoides*, 2 lbs/acre; Sandberg bluegrass, *Poa sandbergii*, 2 lbs/acre; needle-and-thread grass, *Stipa comata*, 2 lbs/acre (sandy sites only); Globemallow, *Sphaerlcea sp.*, 0.5 lbs/acre (loamy and shallow sites only); blue flax, 0.5 lbs/acre; Gardner's saltbush, *Atriplex gardneri*, 2 lbs/acre (saline sites only); winterfat, *Krascheninnikovia lanata*, 2 lbs/acre.

## 4.9 WILDLIFE AND FISHERIES

Impacts to wildlife resources from construction activities would generally be through loss of habitat and disruption of activities due to human presence. Disruption would generally be limited to the construction period, whereas habitat loss would occur for several years until revegetation is successful. Any action that would prevent realization of WGFD big game population objectives would be considered a significant impact to the resource. Any action that results in the disruption of raptor breeding activities, and subsequent reproductive failure, would be considered a significant adverse impact. Any action that results in the continuous disruption of sage grouse breeding activities would be considered a significant adverse impact. Any action that would prevent realization of WGFD game fish population objectives would be considered a significant adverse impact.

### 4.9.1 The Proposed Action

#### 4.9.1.1 Big Game

A total of 376.2 acres of pronghorn habitat would be disturbed due to proposed project activities, including approximately 94.1 acres of crucial winter/yearlong range within the Sublette and West Green River pronghorn herds (Table 4.3). Total loss of crucial winter/yearlong range within each herd unit is less than 0.01% for the Sublette herd (63.2 acres) and approximately 0.01% for the West Green River herd (30.9 acres). Remaining disturbance to pronghorn range would affect 282.1 acres of spring/summer/fall range within the Sublette herd, or less than 0.1% of this range type within the herd. Impacts to the Sublette and West Green River pronghorn herds due to proposed construction activities would be low.

Approximately 166.8 acres of mule deer range would be disturbed as a result of project construction, including 121.5 acres of crucial winter range (Table 4.3)--41.7 acres within the



Table 4.3 Potential Disturbances Within Big Game Ranges for Proposed Action and Alternative.

| Wildlife Resource | Acreage Within Herd Unit | Acreage of Disturbance Within Herd Unit | | Percentage of Disturbance Within Herd Unit | |
|---|---|---|---|---|---|
| | | PA[1] | Alt. A[1] | PA[1] | Alt. A[1] |
| **PRONGHORN** | | | | | |
| **Sublette Herd** | | | | | |
| Crucial Winter/Yearlong Range | 705,600 | 63.2 | 63.9 | <0.01 | <0.01 |
| Spring/Summer/Fall Range | 3,047,744 | 282.1 | 313.0 | <0.01 | 0.01 |
| **West Green River Herd** | | | | | |
| Crucial Winter/Yearlong Range | 278,912 | 30.9 | 30.9 | 0.01 | 0.01 |
| **MULE DEER** | | | | | |
| **Steamboat Herd** | | | | | |
| Winter/Yearlong Range | 679,168 | 37.0 | 37.0 | <0.01 | <0.01 |
| **Sublette Herd** | | | | | |
| Crucial Winter Range | 116,736 | 41.7 | 47.8 | 0.04 | 0.04 |
| **Wyoming Range Herd** | | | | | |
| Crucial Winter Range | 261,790 | 79.8 | 79.8 | 0.03 | 0.03 |
| Winter/Yearlong Range | 321,722 | 8.3 | 8.3 | <0.01 | <0.01 |
| **ELK** | | | | | |
| **Piney Herd** | | | | | |
| Winter/Yearlong Range | 427,136 | 79.8 | 79.8 | 0.02 | 0.02 |
| **West Green River Herd** | | | | | |
| Severe Winter Relief Range | 56,256 | 18.1 | 18.1 | 0.03 | 0.03 |
| Winter Range | 166,464 | 13.4 | 13.4 | <0.01 | <0.01 |
| **MOOSE** | | | | | |
| **Lincoln Herd** | | | | | |
| Winter/Yearlong Range | 388,122 | 12.1 | 12.1 | <0.01 | <0.01 |
| **Sublette Herd** | | | | | |
| Crucial Winter/Yearlong Range | 314,368 | 9.7 | 9.7 | <0.01 | <0.01 |
| Spring-Summer-Fall Range | 1,379,136 | 5.5 | 5.5 | <0.01 | <0.01 |
| Winter Range | 104,000 | 10.6 | 10.6 | 0.01 | 0.01 |

[1] PA = Proposed Action; Alt. A = Alternative A.

Sublette herd and 79.8 acres within the Wyoming Range herd. This would constitute 0.04% and 0.03% of the total crucial winter range in the two herd units, respectively. In addition, 37 acres of winter/yearlong range would be disturbed in the Steamboat herd, and 8.5 acres in the Wyoming Range herd. This would constitute less than 0.01% of winter/yearlong range within the two herd units. Impacts to the Steamboat, Sublette, and Wyoming Range mule deer herds resulting from the proposed project would be low.

A total of 111.3 acres of elk habitat would be disturbed by project activities (Table 4.3). Approximately 18.1 acres of severe winter relief range within the West Green River herd, representing 0.03% of this range type within the herd unit, would be disturbed. The remaining disturbance within elk range includes 79.8 acres of winter/yearlong range within the Piney herd (0.02% of such range in the herd unit) and 13.4 acres of winter range in the West Green River herd (<0.01% of such range in the herd unit). No elk crucial ranges occur along the proposed ROW. Impacts to the Piney and West Green River elk herds resulting from the proposed project would be low.

Proposed project activities would result in the disturbance of approximately 37.9 acres of moose habitat, including approximately 9.7 acres of crucial winter/yearlong range, representing less than 0.01% of this range type within the herd unit (Table 4.3). Approximately 10.6 acres of winter range and 5.5 acres of spring-summer-fall range would also be disturbed within the Sublette moose herd. Within the Lincoln moose herd unit, 12.1 acres of winter/yearlong range would be disturbed. Impacts to the Lincoln and Sublette moose herds resulting from the proposed action would be low.

All construction activity would occur prior to the seasonal restriction period for big game crucial winter ranges (November 15 to April 30). No fencing of ROWs would occur as a result of the proposed project; therefore, big game migration through the area would not be adversely affected. In addition to the direct loss of habitat, short-term disturbances from construction activities would impede utilization of habitats immediately adjacent to



construction areas; this disturbance, due to its temporal nature and limited area of effect, would have minor adverse effects.

Overall, the proposed action would have low adverse effects on the ability of the WGFD to achieve objectives for big game populations in the project area.

4.9.1.2 Raptors

Raptor breeding activity occurs primarily between February 1 and July 31 (BLM 1992), and project construction would occur between September 1 and November 1. Since construction activities would not occur during the raptor breeding season, no impacts to raptor breeding or reproductive success are anticipated.

Reduction in raptor prey species is not anticipated to be a major concern since disturbance would be minimal and scattered throughout the area. Therefore, the reduction in prey species would occur over a relatively large number of raptor territories, limiting prey reduction to negligible levels in any one territory.

4.9.1.3 Upland Game Birds

There would be no disruption of sage grouse breeding activity or disturbance of sage grouse nesting habitat due to project activities. No known sage grouse leks occur within 2 mi of the proposed ROW. Furthermore, no pipeline construction would occur between February 1 and July 31, which is considered the sage grouse breeding and nesting period (BLM 1992). Approximately 350 acres of sage grouse habitat would be disturbed as a result of proposed project activities; however, this represents a very small portion of the total habitat available to sage grouse in the project area and is not likely to alter existing sage grouse habitat use patterns. Therefore, no adverse effects to sage grouse populations are anticipated.

4.9.1.4 Fisheries

Impacts to game fish populations in the Green River, Birch Creek, and Fontenelle Reservoir would be short-term and minor. ROW crossings of the Green River would be undertaken during the low flow period (September), and would result in some short-term sediment release as the pipeline is placed below the river bed. However, since this construction period would be of short duration at each crossing (2-3 days), aquatic habitats would not be significantly impacted by project construction. Both crossings would be constructed in early to mid-September to minimize adverse effects to trout and kokanee spawning runs in the Green River.

4.9.1.5 Other Species

Primary effects to other mammal, bird, and amphibian/reptile populations would occur in direct proportion to the amount of a species' habitat removed. Since total surface disturbance represents only a very small proportion of available habitats, impacts on these populations are expected to be low.

**4.9.2 Alternative A**

Overall, an additional 31.6 acres of big game habitat disturbance would occur under Alternative A.

Although the amount of disturbance within some big game ranges along the ROW would increase slightly under this alternative, the percentage of range types disturbed within each herd unit would remain essentially the same (Table 4.2). Specific changes under this alternative include an increase of 0.7 acres of disturbance in the crucial winter/yearlong range and 30.9 acres in the spring/summer/fall range of the Sublette pronghorn herd, and a 6.1 acre increase in disturbance of Sublette mule deer herd crucial winter range. As with



the proposed action, this alternative is expected to have negligible impacts on the ability of the WGFD to achieve big game population objectives.

A single sage grouse lek occurs within 2 miles of the Alternative A ROW, and approximately 15.4 acres of sage grouse nesting habitat would be disturbed as a result of construction activities associated with Alternative A. This represents approximately 0.2% of the available nesting habitat for this lek. No construction activities would occur during the sage grouse breeding and nesting season, and no significant adverse impacts to sage grouse populations are anticipated under this alternative.

Impacts to raptors, fisheries, and other mammal, bird, and amphibian/reptile species would be essentially the same as those described under the proposed action.

**4.9.3 No Action**

No impacts beyond those currently existing on the area would occur to wildlife and fish populations under the No Action Alternative, since no additional disturbance would occur.

**4.9.4 Mitigation**

No additional mitigation.

## 4.10 WILD HORSES

Impacts to wild horses would be considered significant if project-related activities resulted in nonattainment or a permanent reduction of wild horse populations below BLM management levels.

**4.10.1 The Proposed Action**

Loss of forage and intrusion by humans would affect bands of wild horses along the ROW. It is anticipated that wild horses would move at least a short distance away from active construction sites, causing temporary displacement and disruption to wild horse bands over a limited area. This would be a short-term, low adverse effect to the Little Colorado Desert IWHHMA.

Approximately 233 acres of range within the Little Colorado Desert IWHHMA would be disturbed as a result of the proposed action. This amounts to less than 0.04% of the total range available within this herd unit and would have a negligible impact on attainment of wild horse population objectives.

Vegetation is relatively sparse over much of the Little Colorado Desert IWHHMA and range condition is considered to be fair at best. A relatively small amount of forage would be lost through initial removal of vegetation, and the temporary conversion of some areas from shrublands to grasslands would likely be beneficial to wild horses; therefore, impacts to wild horses through loss of forage would be negligible. Water resources within the Little Colorado Desert IWHHMA would not be depleted nor contaminated by the proposed action. No significant adverse impacts to wild horses would occur as a result of the proposed action.

**4.10.2 Alternative A**

The amount of disturbance within the Little Colorado Desert IWHHMA under Alternative A would increase by approximately 15% over that of the proposed action. Approximately 268 acres of wild horse habitat (<0.05% of the herd unit) would be disturbed. As with the proposed action, it is anticipated that adverse effects to wild horse populations due to this alternative would be negligible.



**4.10.3 No Action**

No additional impacts beyond existing levels would occur to wild horse populations under the No Action Alternative since no additional disturbance would occur.

**4.10.4 Mitigation and Monitoring**

No additional mitigation.

**4.11 THREATENED, ENDANGERED, AND CANDIDATE SPECIES**

Any action that would adversely affect a federally listed threatened or endangered species, or their critical habitat, or any recovery program for such species, would be considered a significant impact. Any action that would cause a candidate species to be listed as threatened or endangered would be a significant impact.

**4.11.1 The Proposed Action**

Bald eagles use mature cottonwoods along the Green River adjacent to the southern ROW crossing for both roosting and nesting activity; some roosting also occurs in the vicinity of the northern crossing. The proposed construction schedule for the Green River pipeline crossings (September 1 to September 30), however, is planned to avoid both the nesting (February 1 to July 31) and roosting (early November to late February) periods. No mature cottonwoods will be cut or damaged as a result of project activities. As a result, no adverse effects to bald eagles, their nests, or their critical habitat (cottonwood roosts) would occur.

Peregrine falcons may occasionally use the area for foraging during winter or migrations, but no known nests or roosting areas have been reported in the vicinity of the proposed ROW. No adverse effects to peregrine falcons that potentially hunt on the area are expected.

Since whooping cranes have only rarely been observed in the area, it is unlikely that areas in the vicinity of the proposed ROW are important whooping crane habitat. Therefore, no adverse effects to whooping cranes or their critical habitat are anticipated from this project.

Although only one confirmed historic black-footed ferret sighting has been recorded for the area, potential black-footed ferret habitat may exist in white-tailed prairie dog colonies crossed by the proposed ROW west of the Green River. Impacts to potential black-footed ferret populations would not occur because suitable habitat (USFWS 1989) would not be affected. The only potential prairie dog towns along the proposed ROW that could have provided ferret habitat were surveyed on May 9 and 10, 1994. A determination was made that these areas would not be adversely affected by the proposed pipeline ROW (personal communication, May 20, 1994, with Gary L. Heller, Wildlife Biologist, Mariah Associates. Inc., Laramie, Wyoming).

Loss of potential mountain plover, loggerhead shrike, and long-billed curlew foraging and nesting habitat could occur due to the proposed activities; however, due to the scattered nature and limited extent of habitat disturbance it is anticipated that these species would not be permanently displaced and individuals or populations would not be adversely impacted. Because of the project schedule, no nesting birds would be affected.

No potential conflict between the single known ferruginous hawk nest and project activities is anticipated since pipeline construction would not occur during the breeding season. Loss of potential prey due to habitat disturbance in habitats where ferruginous hawks hunt would be insignificant compared to the total acreage of hunting habitats available. No adverse impacts to ferruginous hawks or their nests due to proposed project activities are anticipated.

Due to the rarity of observations for North American lynx, trumpeter swan, and white-faced ibis in the vicinity of the proposed ROW, and the extremely limited amount of potential



habitat to be disturbed, no adverse impacts are anticipated to individuals or populations of these species.

T&E fish species (Colorado squawfish, humpback chub, bonytail chub, and razorback sucker) occurring downstream of the proposed ROW within the Colorado River system would not be adversely affected by the proposed project since there would be no surface water depletion. Candidate fish species potentially occurring within the Green River, Birch Creek, and Fontenelle Reservoir (flannelmouth sucker and roundtail chub) would not be adversely impacted due to the timing of construction (low water) and the use of proper and adequate construction and erosion control techniques.

Individual or populations of special status plant species may be encountered along the proposed pipeline ROW. Site-specific clearance surveys would be conducted to determine their presence in the project area. Mitigation measures, including avoidance, would be applied to ensure that these special status plants species are not adversely impacted as a result of the proposed action.

### 4.11.2 Alternative A

As with the proposed action, there would be no adverse impacts to T&E and candidate species due to Alternative A. The same mitigation measures as those identified for the proposed action would be implemented under Alternative A. Approximately 8.4% more land disturbance would occur under Alternative A than the proposed action. Individual or populations of special status plant species may be encountered along the Alternative A pipeline ROW. Site-specific clearance surveys would be conducted to determine their presence in the project area. Mitigation measures, including avoidance, would be applied to ensure that these special status plants species are not adversely impacted as a result of Alternative A.

### 4.11.3 No Action

No impacts to T&E and candidate plant and animal species would occur under the No Action Alternative since no project-related disturbance would occur.

### 4.11.4 Mitigation and Monitoring

In the unlikely event that bald eagle nests or roosts or ferruginous hawk nests are discovered along the proposed or alternative ROW routes, the BLM, USFWS, and WGFD would be consulted and appropriate mitigation measures would be implemented to ensure that no adverse impacts occur to these species.

Site-specific clearance surveys, as determined by the BLM, for special status plants would be conducted along the proposed or alternative ROWs prior to pipeline construction. Should any special status plants be located during surveys on or near the ROW route, BLM may require implementation of the following mitigation measures as deemed appropriate:

- reasonable relocation of the pipeline to areas where plants are less abundant;
- above-ground placement of the pipeline to avoid disturbance to plant populations, depending on species;
- on-site monitoring by a qualified botanist and AO to avoid or reduce impacts to species populations;
- fencing or flagging of candidate and sensitive plant populations so they would be avoided during construction activities;
- transportation, seed collection and propagation, or other similar proven means of reducing impacts to population numbers; and/or
- evaluation and approval of all survey reports and recommendations for avoidance or other mitigation by the BLM District Botanist and Resource Area Special Status Plant Coordinator prior to construction activity.



## 4.12 LIVESTOCK AND GRAZING MANAGEMENT

The impacts to grazing management would be significant if there would be a reduction in AUMs of a magnitude that would require modifications in the grazing allotment, or other actions that would prevent realization of existing grazing goals.

### 4.12.1 The Proposed Action

The proposed action would result in disturbance to forage supporting approximately 33 AUMs in the six affected grazing allotments. The most AUMs affected would occur in the North La Barge Common and 18-Mile allotments, where 12 and 11 AUMs would be affected, respectively. This represents 0.06% of the AUMs in each of the allotments. The ROWs would be revegetated and would be expected to produce more grass forage within the first few years, in many cases, than is presently produced on the same areas under existing conditions, since the grass would have little competition with shrubs during the initial stages of revegetation. For these reasons, impacts to livestock and grazing management would be short-term and low.

### 4.12.2 Alternative A

Impacts would be similar under Alternative A, except that forage supporting 35 AUMs would be disturbed, again primarily in the North La Barge Common and 18-Mile allotments (12 AUMs each), and impacts would be short-term and low.

### 4.12.3 No Action Alternative

There would be no impacts from the No Action Alternative because no forage would be disturbed due to pipeline construction.

#### 4.12.4 Mitigation

No additional mitigation.

### 4.13 RECREATION

Any action that would prohibit or interfere with major existing developed recreation sites or facilities for more than one recreation season, or would result in long-term displacement or elimination of existing dispersed recreation would be a significant impact.

#### 4.13.1 The Proposed Action

The proposed action would not cause significant adverse impacts to recreational resources in the project area. No major existing developed recreation sites of facilities would be affected, and there would be no long-term displacement or elimination of existing dispersed recreation.

#### 4.13.2 Alternative A

Impacts from Alternative A would be similar to those of the proposed action. There would be no significant adverse effects.

#### 4.13.3 No Action Alternative

Implementation of the No Action Alternative would have no impacts on recreational resources since no project-related activities would occur.



#### 4.13.4 Mitigation

No additional mitigation.

### 4.14 VISUAL RESOURCE MANAGEMENT

Any action that would violate guidelines for existing VRM classes, causing a downgrading in VRM class for any area, would be a significant impact.

#### 4.14.1 The Proposed Action

There would be no significant adverse impact to visual resources as a result of the proposed action. The areas adjacent to the Green River included in VRM Class II would retain the existing character of the landscape, and the level of change to the characteristic landscape would be low. The proposed action would not attract the attention of the casual observer, and the changes would repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. There would be low short-term adverse impacts in these areas during actual construction and until revegetation of disturbed areas is accomplished. These impacts would occur only in the immediate area of ROW construction. The remainder of the project area is Class IV, the objective of which is to provide for management activities which require major modifications of the existing character of the landscape where the level of change to the characteristic landscape can be high and management activities may dominate the view and be the major focus of viewer attention. Visual disturbance under the proposed action would not exceed these criteria.

#### 4.14.2 Alternative A

Impacts from Alternative A would be similar to those for the proposed action. There would be more disturbance to VRM Class IV areas due to the increased length of the pipeline ROW; however, since Alternative A would follow an existing visually disturbed area, it would not cause adverse impacts.

#### 4.14.3 No Action Alternative

There would be no impacts to, or changes in, existing visual resources under the No Action Alternative since no project-related disturbance would occur.

#### 4.14.4 Mitigation

Questar would design and locate pipeline routes to blend into the existing environment in a manner that most closely meets the minimum degree of contrast acceptable for the visual resource management class in which the structures will be located. Blend pipeline clearings with natural and modified vegetative clearings and patterns so that they are natural in appearance by avoiding straight-line visual effects. Place pipelines along existing roads to minimize visual contrasts with the natural landscape. Locate new pipelines as close as possible to existing pipelines in order to reduce the width required for the corridor. Require cleared areas to be "feathered" or given uneven or undulatory boundaries to lessen the visual tunnel effect.



## 4.15 UNAVOIDABLE ADVERSE IMPACTS

#### 4.15.1 The Proposed Action

The proposed action would result in surface disturbance of 376.6 acres, thus increasing the potential for erosion. Some crucial big game ranges would be adversely affected, and there would be low level, short-term adverse impacts to riparian areas, wetlands, water resources, air quality, and noise.

#### 4.15.2 Alternative A

Alternative A would result in surface disturbance to 408.2 acres. Other impacts would be similar to those in the proposed action, but generally somewhat greater due to the greater length of the ROW.

#### 4.15.3 No Action Alternative

The No Action Alternative would contribute nothing to the local economy in the short-term (payrolls, sales tax, economic activity) or the long-term (property taxes).

## 4.16 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT vs. LONG-TERM PRODUCTIVITY

#### 4.16.1 The Proposed Action

Short-term use of the environment would enhance natural gas gathering and stimulate the local economy with low level impacts to other aspects of the environment, and would not adversely effect long-term use or productivity. Additional gas gathering facilities would enhance long-term productivity.

#### 4.16.2 Alternative A

The relationship between short-tern use and long-term productivity would be similar to that of the proposed action.

#### 4.16.3 No Action Alternative

There would be no changes in use in the short-term under the No Action Alternative. Long-term productivity in terms of gas gathering facilities would be reduced.

### 4.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

#### 4.17.1 The Proposed Action

There would be no irreversible or irretrievable commitments of resources other than the depletion of energy, materials, and manpower committed to the proposed action.

#### 4.17.2 Alternative A

Irreversible or irretrievable commitments of resources would be similar to those in the proposed action.

#### 4.17.3 No Action Alternative

There would be no resource commitment under the No Action Alternative.



## 5.0 CUMULATIVE IMPACTS

Questar's Birch Creek Pipeline would be constructed in an area of the state that is already subjected to impacts from locally intensive oil and gas production. The economy in the vicinity of the project is dependent upon the oil and gas industry. For instance, 75-90% of employment and income in the Big Piney/La Barge area, near the north end of the pipeline, is provided by the oil and gas industry (BLM 1991). The Birch Creek Pipeline would add to the employment opportunities and economic activity that drives the local economy.

Land ownership has changed little due to impacts from the oil and gas industry in the area, with most land being owned by the United States and managed by the BLM. Private ownership is primarily along the Green River and other watercourses, and sections 16 and 36 in each township are generally owned by the State of Wyoming. This existing landownership pattern would not change. Land use, however, has been modified over the years as oil and gas increased in importance. Grazing, wildlife habitat, and recreation continue to be important uses, but they have often been modified by the growth of the oil and gas industry.

Increased human activity has disturbed cultural and historical resources in the area. On the positive side, much has been learned about the cultural history of the area from cultural resource inventories, most of which have been mandated prior to surface disturbing activities such as oil and gas activities. These inventories often provide for the protection of cultural resources in place, or their orderly removal and recording. On the other hand, increased human activity in the area has heightened the opportunities for cultural resource vandalism and accidental damage, especially prior to the enactment of laws that protect these resources. The proposed Birch Creek Pipeline, like other current federal actions, would ensure adequate protection of cultural resources.

Surface disturbance from wellpads, roads, pipelines, and other associated facilities has been extensive in the area (Figure 2.1). In the Big Piney/La Barge oil and gas field, for instance, approximately 2,000 wells have been drilled, with about half of these still active. Additional disturbance on the east side of the Green River, though not yet as extensive, exists in oil and gas fields such as the Fontenelle Unit. Stringent guidelines for reclamation and revegetation have prevented serious erosion problems and assured adequate revegetation. Problem soils in some areas, however, have presented reclamation problems, but these problems are being avoided or corrected with increased emphasis on siting, reclamation procedures, and techniques such as directional drilling. The Birch Creek Pipeline would disturb additional lands and remove additional native vegetation. Soil disturbance would be short-term and would be reclaimed and revegetated within a period of months at the most; however, it would be years before shrub densities on some disturbed areas approach predisturbance levels.

Water resources in the area are impacted by the same activities that impact soils. The Green River remains a high quality resource in spite of development, and the proposed project would not have other than low, short-term impacts due to installation of two pipeline crossings. These proposed crossings would occur at locations already crossed by existing pipelines, so no new corridors would be created.

Impacts to air quality and noise in the project area also result primarily from oil and gas activities. Existing impacts to air quality are primarily from fugitive dust associated with construction and drilling activities and road traffic, and emissions from vehicles, equipment, and stationary facilities such as compressor stations. Noise results primarily from these same sources. The proposed project would add low level, short-term adverse effects to these resources, but they would essentially end after the two month construction period.

Riparian areas and wetlands have received increased protection in recent years, and these areas are now routinely avoided or mitigated. Impacts from the proposed pipeline would



be short-term and low. Existing ROW corridors would be used at the Green River crossings, and Birch Creek would be spanned in two locations to minimize impacts. Crossings of ephemeral washes would not affect the functions or values of those areas, and would impact only the ROW corridor in each case.

There is no substantive evidence that oil and gas development in the project area has precluded the realization of WGFD's big game population objectives. There is increasing evidence that cumulative impacts to the Piney elk herd in the vicinity of the north end of the proposed pipeline has affected the availability of elk crucial winter habitat. In addition, habitat has been lost as the result of long-term removal of vegetation for roads, wellpads, etc., and that some displacement has occurred due to human disturbance. The Birch Creek Pipeline, however, would affect no elk crucial winter range. The pipeline traverses primarily winter/yearlong elk range in an area that is already impacted to the extent that significant elk use is precluded. Impacts to the West Green River elk herd would be very low due to the small amount of habitat disturbed and the lack of additional disturbance once construction ends.

Additional impacts to threatened and endangered and sensitive species would not result from the proposed pipeline. Some existing projects may affect T&E and sensitive fish species, primarily as a result of surface water depletion. The Birch Creek Pipeline would not add to this impact. No other T&E or sensitive species have been adversely affected by past development, nor would they be adversely affected by the proposed pipeline. No candidate species has been adversely affected so that they would require listing as threatened or endangered, and none would be as a result of the proposed pipeline.

The Birch Creek Pipeline would cause negligible levels of additional disturbance to wild horses, livestock grazing, and recreation, and would be in compliance with existing visual resource management objectives.

## 6.0 RECORD OF PERSONS, GROUPS, AND GOVERNMENTAL AGENCIES CONSULTED

| Agency | Individual | Position |
|---|---|---|
| Questar Pipeline Company | Tim Blackham | Dir., Property and Right of Way |
| | David Flaim | Senior Coordinator, Environmental Affairs |
| | George Wilberger | Senior Property Agent |
| | Mike Legerski | Field Engineer |
| | John Hernderon | Asst. Supt., Pipeline |
| Nature Conservancy, Natural Diversity Database | Mary Neighbors | Information Management |
| U.S. Fish and Wildlife Service | Charles P. Davis | Field Supr., Wyoming State Office |
| | Greg Siekaniek | Refuge Mgr., Seedskadee National Wildlife Refuge |
| Wyoming Emergency Management Agency | Ed Wallace | Mitigation Planner |
| Wyoming Game and Fish Department | Mark Fowden | Area Fish Supr., Green River Dist. |
| | Glen Dumming | Area Fish Supr., Pinedale Dist. |
| | Pat Hnilicka | Biologist, Biological Services |
| U.S. Bureau of Reclamation | Rex Gabbitas | Chief of Lands and Recreation (RET) |
| | Dave Krueger | Acting Chief of Land and Recreation |



## 7.0 LIST OF PREPARERS AND REVIEWERS

| Name | Firm | Responsibility |
|---|---|---|
| **Preparers** | | |
| Roger Schoumacher | Mariah Associates, Inc. | Project management, Technical Coordinator |
| Peter Guernsey | Mariah Associates, Inc. | Vegetation |
| Suzanne Luhr | Mariah Associates, Inc. | Cartography |
| Heinz Jacobs | Mariah Associates, Inc. | Cartography |
| Bill Harding | Mariah Associates, Inc. | Archaeology |
| Gary Heller | Mariah Associates, Inc. | Wildlife, T&E Species |
| Bill Glenn | Independent Contractor | Soils, reclamation |
| **Reviewers** | | |
| Teri Deakins | BLM, Rock Springs | Project coordination |
| William McMahon | BLM, Rock Springs | Project coordination |
| John McDonald | BLM, Rock Springs | Soils |
| Barbara Amidon | BLM, Rock Springs | Special status plants |
| Bill Le Barron | BLM, Green River RA | Project coordination |
| Jon Dolak | BLM, Green River RA | Soils, reclamation |
| James Dunder | BLM, Green River RA | Wildlife, T&E species |
| Sally Haverly | BLM, Green River RA | Lands |
| Russ Turner | BLM, Green River RA | Archaeology |
| Thor Stephenson | BLM, Green River RA | Wild Horses |
| Dave Harper | BLM, Pinedale RA | Soils, reclamation, and lands |
| Bob McCarty | BLM, Pinedale RA | Wildlife, T&E species |
| Doug Powell | BLM, Pinedale RA | Grazing management |
| Dave Vlcek | BLM, Pinedale RA | Archaeology |

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**APPENDIX A:**

RECLAMATION PLAN



**RECLAMATION PLAN FOR PROPOSED BIRCH CREEK PIPELINE**

The specific goal of the reclamation plan is to restore the pipeline corridor to near its pre-disturbance productivity and vegetative community types. Vegetative ground cover would attain its former production within five years, and shrub cover would attain its former density within 10-25 years. Grasses would be seeded during initial reclamation to stabilize the soils, whereas shrubs and other native vegetation would reestablish naturally over time. Shrubs would be replanted on localized sites of special concern only. Rehabilitation and reclamation measures would follow conditions of approval incorporated in the BLM's right-of-way (ROW) grant. Reclamation monitoring may require collection of data adequate to characterize ground cover, vegetative canopy cover, and species occurrence.

Erosion condition ratings for reclaimed sites would also be evaluated at the same time that vegetation is monitored. BLM's Erosion Condition Class Rating System would be used. Other acceptance criteria may be adopted as a result of a reclamation technical review.

**Construction Operations**

Slash would be bladed and windrowed to the side of the ROW work surface with topsoil. Topsoil would be removed for the full width of the bladed ROW to a depth of 6 inches, or greater if so directed by the BLM's Authorized Officer (AO) or landowner, and would not be mixed with unsuitable subsoil materials. Topsoil would be stored on the outer edge of the ROW and away from construction traffic. All slash/topsoil handling would be supervised by Questar.

Construction would occur as soon as possible after clearing and grading to minimize exposure of soils to erosion. A ditch approximately 34 inches wide and about 4 ft deep (depending upon the size of the pipe) would be excavated for placement of the pipe.

Overburden would be stored adjacent to the ditch to facilitate subsequent backfilling. Questar would not allow any construction or routine maintenance activities when soils are too wet to adequately support construction equipment. If such equipment creates surface ruts in excess of 4 inches deep, Questar would deem that soil conditions are too wet and construction activities would cease until conditions improve.

A stormwater discharge plan would be prepared for the project to ensure that precipitation would not cause excessive erosion or other problems. The plan would be prepared to standards set by the Wyoming Department of Environmental Quality (DEQ).

Backfilling of the ditch would occur as the pipe is installed. Grading and recontouring would take place as soon as practical. Recontouring would return the backfilled trench to its approximate original contour. All cuts made in steep or rolling terrain would be regraded and contoured to blend into the surrounding landscape and to reestablish natural drainage patterns. Emphasis during recontouring would be to return the entire ROW to its original contour, to stabilize slopes, control surface drainage, and to provide a more aesthetic appearance. Regrading and recontouring may be necessary in some locations to reduce slopes so as to minimize erosion and reclamation problems. Such recontouring would be directed by Questar on a site-by-site basis as the need arises, with approval of the AO.

**Reclamation and Revegetation**

Since pipeline construction is anticipated in the fall, reclamation and revegetation would be completed shortly after construction, weather permitting.

The ROW would be scarified where required by ripping or chiseling to loosen compacted areas prior to respreading topsoil. Scarifying the subsoil will promote water infiltration, improve soil aeration, and aid root penetration. Topsoil/slash would be replaced to a depth



equivalent to preconstruction conditions. The slash would serve as both a mulch and a potential seed source. Where available, rocks would be pulled back into the ROW.

Scarification would be accomplished with an offset disk or a chisel plow depending upon the terrain. Ripping and scarification may be required where soils have been heavily compacted. All disturbed areas would be seeded with the seed mixtures listed in Section 4.8.4 and Appendix B. Shrubs, such as winterfat, bitterbrush, and fourwing saltbush would be incorporated into the seed mix where local conditions warrant. Planting densities would match local vegetation densities and local, irregular vegetation patterns to ensure compatibility with the visual character of the landscape. The seed mixtures would be planted in the amounts specified in pounds, of 90% pure live seed (PLS), per acre free from noxious weeds. Seed would be tested in accordance with applicable state laws within nine months prior to purchase. The seed mixture container would be tagged in accordance with all applicable state laws and available for inspection by the AO.

Seed would be planted using a drill equipped with a depth regulator to ensure proper planting depth, and the seed mixture would be evenly and uniformly planted over the disturbed area. Where drilling is not possible, broadcast seeding would be used and the seeded area raked or chained to cover the seed. If broadcast seeding is used, twice the amount of seed recommended for drilling would be used.

Plantings of containerized mountain mahogany would occur in areas where the species was removed during ROW construction, as determined by the AO.

Inspections of reclamation efforts would occur on an annual basis to evaluate erosion control and revegetation success. The need to reseed, fertilize, or spot-treat disturbed areas would be determined after the second year. If reseeding is required, the revegetation plan would be reviewed for changes needed to improve revegetation success. Procedures for inspections of reclamation efforts would include the following activities:

- inspection of the reclaimed area for excessive erosion (i.e., rills and gullies) and condition of runoff and erosion control structures (water bars);
- inspection of the reclaimed area for slope stability problems (slumps);
- determination of the need for additional surface protection (mulching, matting, erosion and runoff control measures), and repair/maintenance of these measures; and
- determination of the need for reseeding.

Any significant problems encountered during these inspections would be promptly addressed by Questar in accordance with current BLM procedures or as specified by the AO during life of the project.

The use of fertilizer is not anticipated at this time. If fertilizer is required, the type and application rate would be coordinated with the AO. Fertilizer would not be applied near water courses.

Areas adjacent to the Green River crossings and other localized areas of sensitive soils would be mulched and/or netted at the discretion of Questar and the AO. Weed-free straw or native hay mulch will be applied at a rate of 1-2 tons per acre and crimped into the soil surface.

Runoff and erosion on uplands would be controlled primarily by prompt reclamation and revegetation. Water bars would be constructed in accordance with the requirements of the private landowner, state, or the BLM's AO. Water bars would be installed at 2% down gradient from the natural contour of the land and not necessarily perpendicular to the pipeline ROW. Water bars would begin 3-4 ft into the undisturbed vegetation on the uphill side of the pipeline ROW, collect and transport water across the ROW disturbance, and discharge the water at least 3-4 ft into the undisturbed vegetation on the downhill side of the ROW. One-half of the depth of the waterbars must be cut into compacted soil and the total depth must be 12-18 inches.



The maximum slope distance between waterbar structures would be guided by the following recommendations:

- for grades of 4% or less, the slope distance would be 300 ft;
- for grades of 4% to 8%, the slope distance would be 200 ft;
- for grades of 8% to 25%, the slope distance would be 100 ft; and
- for grades greater than 25%, the slope distance would be 50 ft.

Waterbars would be installed at significant grade changes or as requested by the AO or landowner.

Inspection and maintenance of all temporary and permanent erosion control structures would occur on an annual basis until revegetation is deemed successful. Additional erosion control structures or procedures would be implemented if erosion problems persist.

Questar would be responsible for weed control on the disturbed areas within the ROW, and would coordinate with the AO and local authorities to determine acceptable weed control methods for the disturbed areas within the ROW. Weed control methods would be used in the season or growth stage during which they are most effective. Chemicals would be applied by certified personnel using approved precautions, application methods, and rates in compliance with all applicable state, federal, and local pesticide regulations. Use of herbicides would be avoided in all areas near perennial water sources, and would not be used during windy conditions.

**APPENDIX B:**

GENERAL STANDARD OPERATING PROCEDURES
FOR SURFACE-DISTURBING ACTIVITIES (BLM 1993)



**APPENDIX B**

# GENERAL STANDARD OPERATING PROCEDURES FOR SURFACE-DISTURBING ACTIVITIES

The following are general standard operating procedures applied to surface-disturbing activities. These measures are applied, when necessary, to reduce environmental impacts. Some projects may require construction and use plans (CUP) and(or) erosion control revegetation and restoration plans (ERRPs). These situations will also require a site specific environmental analysis to address impacts and appropriate mitigation measures.

## HANDLING OF TOPSOIL AND SPOIL

Before a surface disturbing activity is authorized, the amount of topsoil to be removed and storage areas will be specified. The need to strip topsoil along buried pipelines, or other buried linear facilities, will be determined on a site specific basis. The general policy will be to strip topsoil unless it can be shown that the specific operations will not negatively impact soil compaction, stability, or fertility. Topsoil in excess of six inches may be stored, if it is available, so that it may be used offsite in areas that do not have adequate topsoil. Areas which have stored topsoil will be marked for use as borrow areas for other areas deficient in topsoil. Whenever possible, topsoil will be used for immediate reclamation. For topsoil stockpiles that are to be kept through the winter, erosion will be controlled by reducing the piles to less than 3 feet in height and by seeding and/or mulching them.

Topsoil stockpiles will be designed to maximize surface area to reduce impacts to soil microorganisms. All surface vegetation will be incorporated directly into the topsoil as organic matter and seed source unless brush is required to be handled separately.

For pipelines on slopes less than 10 percent, a minimum of six inches of topsoil will be stripped from the trench and spoil storage side and placed into a berm by side casting with a grader. For pipelines that are less than 9 inches in diameter, topsoil will not normally be stripped from the working side of the trench.

After the pipe is installed and the spoil material has been compacted back into the trench, topsoil will be spread over the spoil storage and pit area, water bars installed, and reseeded. Care must be taken to not block drainage ditches.

For roads on slopes of less than 10%, available topsoil will be stripped from the construction area and placed in berms by sidecasting with a grader.

After access construction, the topsoil will then be spread back onto the road outslopes and cut slopes.

## CONSTRUCTION, MAINTENANCE AND RECLAMATION OF ROADS

Recognized roads, as shown on the Rock Springs District Office Transportation Plan, will be used when the alignment is acceptable for the proposed use. Generally, roads will be required to follow natural contours; be constructed in accordance with standards as described in BLM Road Standards and BLM Manual section 9113; and be reclaimed to BLM standards.

Access roads will be constructed to the standard necessary to accommodate their intended functions. All roads in the oil field will be treated as "all weather roads." Unless the road sub grade material has enough gravel in it as determined by the authorized officer (AO) all "all weather roads" will be graveled with 2 inch pit run or crushed gravel. All roads constructed by non-government entities across public lands must be designed by or under the direction of a licensed professional engineer. The engineer must certify that the road was built as designed. Soil compaction is required during road construction and culvert installation.

Authorized users are responsible for preventive and corrective road maintenance on all roads associated with field operations. This includes crowning, cleaning ditches and drainage facilities, culvert installation, graveling, dust abatement, or other requirements as directed by the AO.

Riprap will be required at the inlet and outlet of all culvert installations. The minimum size will be determined by the AO's representative.

Surface runoff and sedimentation control will be incorporated in all access road design in accordance with BLM Manual 9113 guidelines and installed as approved by the A.O. Road grades, ditches, culverts, sediment traps,, material cut and fill, and topsoil and spoil areas will be designed and located in the field prior to construction.

Access road culvert location and spacing will be approved by the AO using BLM Road Standards Manual 9113 Illustration 9 "Recommended Spacing for Lateral Drainage Culverts in Various Soil Types", shown below. The culvert spacing shown in feet under the erosion index of 10 to 40 will be used.

**Spacing for Drainage Laterals**

**Recommended Spacing for Lateral Drainage Culverts**

**In Various Soil Types***

| Soil Types | EROSION INDEX 10 | 20 | 30 | 40 |
|---|---|---|---|---|
| Silty sands, sand-silt mixtures, inorganic silts and very fine sands, silty or clayey fine sands | X—— | X | | |
| Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts, organic silts and organic silty clays or low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays | | | | X—— X |

*Unified Soil Classification

| Road Gradient In percent | Erosion Index 10 | 20 | 30 | 40 |
|---|---|---|---|---|
| 2 | 900' | 1225' | | |
| 3 | 600' | 815' | 1070' | 1205' |
| 4 | 450' | 610' | 800' | 905' |
| 5 | 360' | 490' | 640' | 725' |
| 6 | 300' | 410' | 535' | 605' |
| 7 | 255' | 350' | 455' | 515' |
| 8 | 225' | 305' | 400' | 450' |

To control or reduce sediment from roads, guidance involving proper road placement and buffer strips to stream channels, graveling, proper drainage, seasonal closure, and in some cases, redesign or closure of old roads will be developed when necessary.

On newly constructed roads and permanent roads, the placement of topsoil, seeding, and stabilization will be required on all cut and fill slopes unless conditions prohibit this (e.g., rock). No unnecessary side-casting of material (e.g., maintenance) on steep slopes will be allowed.



Snow removal plans may be required for access which have winter use so that snow removal does not adversely affect drainage systems, reclamation efforts or other resources adjacent to the road.

Reclamation of abandoned roads will include reshaping, recontouring, resurfacing with topsoil, installation of water bars, and drill seeding on the contour. The removal of structures such as bridges, culverts, cattleguards, and signs usually will be required. Stripped vegetation will be spread over the disturbance for nutrient recycling, where practical. Fertilization or fencing of



these disturbances will not normally be required. Additional erosion control measures (e.g., fiber matting) and road barriers to discourage travel may be required.

## CONSTRUCTION OF WELL PADS AND FACILITIES

Prior to construction, the proposed pad location will be surveyed and staked and all erosion control design considerations will be reviewed (See Operating Order #1 for required engineering and design information).

The well pads will be laid out so that they are parallel to the contour and the pit is uphill whenever possible (H2S wells may require an exception).

The drill pads will be designed and constructed to disturb the smallest practicable area that will still provide for efficient and safe operations.

All cut and fill slopes will be staked out at least every 50' on slopes with greater than 3' cut and /or fill to identify where topsoil will be removed. Spoil storage areas also must be staked so topsoil can be stripped and stored prior to any other dirt work. All cut and fill work will be balanced to minimize excess spoil material required during pad construction.

If excess spoil exists it will have to be incorporated into the pad fill slope by compacting the spoil in six inch lifts using water and rubber tire vehicles and/or sheep's foot rollers or placed in designated areas and stabilized. The areas of the pad that will support the drill rig and any other heavy equipment will be compacted.

All precautions necessary to stabilize structures will be taken during construction.

During the construction phase, interceptor ditches will be installed above the cut, where necessary. Collector ditches and sediment control structures, designed for a 10-year/24 hr event, may be required below the fill. Water, with a flow less than the 10-year/24 hr storm event, will be diverted and/or collected before being discharged from the disturbed area.

Qualified supervision will be provided during the installation of all erosion control structures including the construction of berms, dikes, trenches and the outslope fill.



No surface disturbance is allowed on slopes in excess of 25 percent unless erosion controls can be ensured and adequate revegetation is expected. Detailed engineering proposals, revegetation and restoration plans and a site specific environmental analysis will be required in these areas.

On producing locations spoil material will be replaced as close to the original contours as the placement of production facilities allows. Operators will be required to reduce cut and fill slopes to 3:1 or less. In those areas where final spoil grading is not possible, spoil will be graded to a gentle slope capable of maintaining a temporary vegetation cover for erosion control. Terraces or elongated water breaks (erosion control measures) will be required after slope reduction. Facilities will be required to approach zero runoff from the location until the area is stabilized to avoid contamination and water quality degradation downstream. All unused portions of facilities on producing well locations will be reduced to 3:1 slopes or less, resurfaced with topsoil and seeded with soil stabilizing species. Topsoil will be taken from the storage pile and spread six inches deep onto the unused portion and chiselled on the contour.

On well pads and larger locations, special attention will be given to sections of the surface use plan covering reclamation. This plan will include objectives for successful reclamation including: soil stabilization, plant community composition, and desired vegetation density and diversity. After they are constructed, reserve pits will be evaluated to determine the need for lining.

## CONSTRUCTION AND RECLAMATION OF PIPELINES AND COMMUNICATION LINES

Existing crowned and ditched roads will be used for access where practical to minimize surface disturbances. Pipelines are to follow new or existing roads or existing buried pipelines where it is practical. The pipeline trenches will not be placed in the access road borrow ditches unless no other reasonable alternative is available.

Generally, pipelines will be laid on the surface when slopes are over 25 percent and where rock outcrops are crossed. When possible pipelines should be built perpendicular to the contour in order to minimize the amount of area required for construction .

Clearing of pipeline and communication line rights-of-way will be accomplished with the least degree of disturbance to topsoil. Vegetation removed from the right-of-way will also be required to be spread to provide protection, nutrient recycling, and a natural seed source.

To promote soil stability, the compaction of spoil material free of vegetative material back into pipeline trenches following each lift replacement. The first lift snould be 18" deep to reduce the chance of puncturing the pipeline. The rest of the lifts should be 8" deep or less. The soil berm above the pipeline trench shall not settle below the original ground surface or rise any more than 3" above it. Any areas that do not meet this requirement will have to be brought in compliance and reseeded. Water bars, mulching, and terracing will be required, as needed, to minimize erosion. Instream protection structures (e.g., drop structures) may be required in drainages crossed by a pipeline to prevent erosion.

When the need is clearly identified through an environmental analysis or monitoring studies, linear disturbances will be fenced to protect the revegetated area from damage due to domestic and wild animals and off-road vehicles.

If linear facilities follow the same right-of-way for all or part of the route, they will generally be required to be constructed so that only one reclamation effort is required. Generally, they will be required to be constructed either concurrently or during the same field season.

## GEOPHYSICAL OPERATIONS

All of the standard practices for surface disturbing operations will apply to geophysical operations. The most critical management practice is compliance monitoring during and after seismic activity. Compliance inspections during the operation ensure that stipulations are being followed. Compliance inspections upon completion of work ensure that the lines are clean and the drill holes are properly plugged.

## RECLAMATION

Reclamation will be required on all disturbed areas. On roads left intact for access purposes, the stabilization of all disturbed areas, except the running surface, will be required.

Reclamation (by the operator or grant holder) will be initiated as soon as possible after a disturbance occurs. Construction of erosion and runoff control measures and placement of topsoil will be required after recontouring. Continued efforts will be required until satisfactory vegetation cover is established and the site is stabilized.

Site-specific reclamation plans will identify and provide reclamation erosion control methods for potential surface water impact for pipeline stream crossings. Stream channels will be restored to preconstruction grade and stabilized using appropriate methods, such as riprap, gabions and bulkhead retaining walls, timber, hay bales, and silt fences.

The collection and analysis of soil samples from disturbed areas may be required as part of reclamation planning to determine appropriate seed mixtures, and nutrient deficiencies. Soil testing and reports will be the responsibility of the grantee or lessee. Testing (as determined by BLM) may include: pH, mechanical analysis, salt, exchangeable sodium percentage, nitrogen, phosphorus, and(or) potassium content.

Fertilization may be required if there is evidence of a nutrient deficiency. If needed to produce adequate germination and growth, the topsoil and selected seed species would be inoculated with soil microorganisms. The site will be drill seeded or broadcast (if slopes exceed 30 percent or contain 35 percent surface rock content).

Coarse materials with large voids will be compacted or covered with fine textured spoil material prior to topsoil placement to prevent sifting of topsoil into the spoil.

Severely compacted soils will be cross-ripped to a depth of two feet with two foot centers in order to gain a more desirable seed bed.

During the operational life of a facility, (e.g. producing well, manifold, microwave tower, block valve, etc.), disturbed surface area not needed for operations will be reclaimed. This will entail spreading stockpiled spoil materials unto the areas to be reclaimed and then spreading stockpiled topsoil over the spoil. The areas will then be seeded and mulched as specified.

Stockpiled spoil will be replaced immediately after abandonment of surface facilities. Spoil and topsoil replacement will be completed at the first appropriate time during the following field season (May - October) to allow for fall seeding and mulching.





Grading may be required to improve steep, long and/or rough slopes in preparation for seed bed manipulations and planting.

In particular, grading will be used to blend cut-and-fill slopes with adjacent undisturbed areas while minimizing slope length, improving stability, reducing runoff, and decreasing erosion. Grading will provide for uniform distribution of spoil and topsoil. Grading will be used to implement one or more of the following specialized techniques; slope rounding, bench grading, stair-step grading, contour furrowing and berm placement on top of cut or fill slopes.

Snow fences, placed to increase snowfall depth over a reclaimed area, and reshaping to create shallow depressions (to catch surface runoff) may be required in areas receiving 10 inches or less of annual precipitation.

If environmental analysis or monitoring identifies the specific need, well sites and sensitive areas along linear rights-of-way will be fenced to protect the revegetated areas from damage by domestic and wild animals and off-road vehicle use. All fences will be built in accordance with the BLM fencing manual and Wyoming State Laws on legal fencing in effect at the time of reclamation. Fences will be kept in a usable condition until reclamation has been accepted by the authorized officer. After reclamation has been approved and the fences have been removed , the authorized officer can then release the operator or grantee from any further liability.

Off-road vehicle barriers will be installed, where necessary, and will consist of boulders, pylons, brush piles or other feasible barriers as required on a site-specific basis.

### Seeding

On all areas to be reclaimed, seed mixtures will be required to be site-specific and will be required to include species promoting soil stability. Livestock palatability and wildlife habitat needs will be given consideration in seed mix formulation. Interseeding, secondary seeding, or staggered seeding may be required to accomplish revegetation objectives. During rehabilitation of areas in important wildlife habitat, provision will be made for the establishment of native browse and forb species, if determined to be beneficial for the habitat affected.

Topsoil will be distributed uniformly on the area to be reclaimed. If there is between 2 to 3" of topsoil available for reclamation, it may be mixed with the top 3" of "acceptable" spoil prior to seeding the site. If 4" to 6" of topsoil is available no mixing will be required. Following topsoil application, seed bed preparation procedures will be determined on the basis of the physical and chemical characteristics of the topsoil and the physical nature of the site itself. A friable, but firm seed bed will be required.

Final seed bed preparation will be scheduled for completion immediately prior to seeding to maximize seeding effectiveness and seedling establishment. If top soil spreading is completed on a site during Spring and seeding is going to be delayed until fall, a suitable cover crop (an annual grass) will be broadcast seeded for stabilization and weed control.

All disturbed areas will be seeded using a drill equipped with a depth regulator. All seed will drilled on the contour. The seed will be planted between one-quarter and one-half inches deep. Where drilling is not possible (too steep or rocky), the seed will be broadcast and the area raked or chained to cover the seed. If the seed mixture is broadcast the listed rate will be doubled. The seeding shall be repeated until a satisfactory stand, as determined by the AO, is obtained.

Each operator will submit the seed certification tags from each bag of seed used, upon request of the AO. In addition, the company will submit a list of what species were actually seeded and the actual application rate for each site.

The following are representative seed mixtures and rates that will be used. The seeding rate will generally be 12 - 15 lbs/acre. The seeding rate will be doubled if the seed is broadcast.

| REPRESENTATIVE SEED MIXTURES<br>SITES WITH TOPSOIL AVAILABLE<br>(Soil amendments and mulch may be required.) | |
|---|---|
| SPECIES | Lbs./Acre |
| A. Dry, alkaline sites and shale slopes (areas with a pH between 8 and 9). Vegetation present: greasewood, shadscale, Gardner saltbush. | |
| Western Wheat (rosanna) | 6 |
| *Slender wheatgrass (pryor) | 4 |
| Winterfat | 2 |
| Fourwing saltbush | 1 |
| Gardner saltbush | 1 |
| *Gooseberry globemallow | 1 |
| Other possibilities:<br>*Creeping wildrye<br>Alkali sacaton<br>*Indian ricegrass<br>Inland saltgrass<br>*Shadscale | |
| B. Dry loamy sites (areas with a Ph of 8.4 or lower and less than 12 inches of moisture.) Native vegetation is commonly Wyoming big sage and thickspike wheatgrass. | |
| Thickspike wheatgrass | 6 |
| Western wheatgrass (rosanna) | 6 |
| Indian ricegrass | 2 |
| Great Basin wildrye | 1-2 |
| Fourwing saltbush | 1-2 |
| Wyoming big sage | 1-2 |
| Winterfat | 1-2 |
| *Gooseberry globemallow | 1 |
| *Blue flax | 1 |
| Other possibilities:<br>Bluebunch wheatgrass<br>Needle-and-thread grass<br>Slender wheatgrass<br>Streambank wheatgrass<br>*Sandberg bluegrass | |



| REPRESENTATIVE SEED MIXTURES<br>SITES WITH TOPSOIL AVAILABLE<br>(Soil amendments and mulch may be required.) | |
|---|---|
| SPECIES | Lbs./Acre |
| C. Loamy sites (areas with a Ph of 8.4 or lower and more than 12 inches of moisture). Vegetation is usually needle-and-thread grass, thickspike wheatgrass, bluebunch wheatgrass and Wyoming big sage. | |
| Thickspike wheatgrass | 6 |
| *Needle-and-thread grass | 6 |
| *Prairie junegrass | 1-2 |
| *Canby bluegrass | 1-2 |
| Bluebunch wheatgrass | 1-2 |
| Streambank wheatgrass | 1-2 |
| Wyoming big sage | 1-2 |
| Antelope bitterbrush | 1-2 |
| Snowberry | 1-2 |
| *Blue flax | 1 |
| Rocky Mountain penstemon | 1 |
| Silky lupine | 1 |
| D. Mountain shrub (deep, loamy soils with 14-18 inches of moisture) | |
| Slender wheatgrass | 5 |
| Mountain brome | 5 |
| Bluebunch wheatgrass | 3 |
| *Idaho fescue | 2 |
| *Prairie junegrass | 2 |
| Mountain mahogany | 1-2 |
| *Rosa woodsii | 1-2 |
| *Mountain big sage | 1-2 |
| Serviceberry | 1-2 |
| Bitterbrush | 1-2 |
| *Arrowleaf balsamroot | 1 |
| *Northern sweetvetch | 1 |

| REPRESENTATIVE SEED MIXTURES<br>SITES WITH TOPSOIL AVAILABLE<br>(Soil amendments and mulch may be required.) | |
|---|---|
| SPECIES | Lbs./Acre |
| E. Aspen-Conifer (higher areas or north facing slopes with 16-20 inches of moisture). | |
| Slender wheatgrass | 3 |
| Mountain brome | 5 |
| Letterman needlegrass | 4 |
| Bluebunch wheatgrass | 4 |
| Idaho fescue | 2 |
| Rosa woodsii | 1-2 |
| Sticky geranium | 1 |
| Arrowleaf balsamroot | 1 |
| Northern sweetvetch | 1 |

* Substitutes



| REPRESENTATIVE SEED MIXTURES<br>SITES WITHOUT TOPSOIL AVAILABLE<br>OR WITH HIGH SALINITY | |
|---|---|
| SPECIES | POUNDS/ ACRE |
| A. Moderate Ph and Salinity | |
| Slender wheatgrass | 4 |
| Thickspike wheatgrass | 4 |
| Creeping wildrye | 5 |
| Shadscale | 3 |
| Indian ricegrass | 2 |
| Spiny hopsage | 1-2 |
| Douglas rabbitbrush | 1 |
| Other possibilities:<br>Crested wheatgrass<br>Russian wildrye | |
| B. Highly saline sites | |
| Slender wheatgrass | 6 |
| Western wheatgrass | 6 |
| Bottlebrush squirreltail | 3 |
| Fourwing salt bush or shadscale | 2 |
| Spiny hopsage | 1-2 |
| Other possibilities:<br>Crested wheatgrass<br>Russian wildrye<br>Meadow foxtail | |

Follow-up soil testing and/or seeding or corrective erosion control measures will be required on areas of surface disturbance which experience reclamation and/or erosion failure.

## Treatments

Mulches will be applied on seed beds with high soil erosion potential or where seed bed microclimate may limit seedling establishment. Any mulch used will be free from mold, fungi, or noxious weed seeds. Mulch may include native hay, small grain straw, wood fiber, live mulch, cotton, jute, synthetic netting, and rock. Straw mulch should contain fibers long enough to facilitate crimping and provide the greatest cover. Some type of matting may be required in more severe conditions such as steep slopes, sandy soils, and other poor soil sites which need site condition modifications to enhance seeding success.

The grantee or lessee will be responsible for the control of all noxious weed infestations on surface disturbances. Control measures will adhere to those allowed in the Rock Springs District Noxious Weed Control EA (USDI 1982a) or the Regional Northwest Area Noxious Weed Control Program EIS (USDI 1987).

Ripping and chiseling will be used to break up compacted soils, increase water penetration, promote root growth, and control erosion. Ripping (2' deep) will normally be used on compacted spoil material and old road beds prior to spreading topsoil. Chiseling on the contour (12" deep) will be done after the site is contoured, ripped, the topsoil is spread, and soil amendments are added.

On sites where quick establishment of shrub and/or small tree species is desirable, bare rooted and containerized species will be hand planted to supplement drilling or broadcast seeding. Shrub species will be planted in areas where wildlife forage is essential, mass slope failure is possible, or along stream crossing to facilitate site stability and wildlife habitat restoration.



Hydroseeding may be required on steep, gravelly slopes which require the seed to be "anchored" onto the soil surface prior to a mulch treatment. Care will be taken to assure that the solution is not harmful to the seed mix components.

## AIR QUALITY PROTECTION MEASURES

As projects are planned that include possible major sources of air pollutant emissions, special air quality protection related stipulations are added to BLM permits and rights-of-way grants. In addition, the BLM coordinates with the Wyoming Department of Environmental Quality/Air Quality Division (DEQ/AQD) during the process of analysis that may lead to the issuance of permits to construct emission sources. This coordination often results in the technical review of applications for permits and(or) identification of additional stipulations to be applied to these permits.

The release of hazardous air contaminants, particularly the emissions from sour natural gas sweetening plants (a process used to remove H2S from natural gas resulting in the emission of sulfur dioxide), is a public concern. BLM requires industry to prepare detailed analyses of risks involved with the development of sour gas pipelines and treatment facilities. These analyses are designed to project impacts both to the public and to resource values. Plant siting will be scrutinized to provide for public safety and to ensure that only areas with the least potential for the transport of pollutants to the wilderness are considered.

To aid in achieving these goals, BLM will consult with the State of Wyoming, the U.S. Forest Service, industry, and the public to ensure that the most technically sound, environmentally balanced, and economically feasible decisions are made.



**APPENDIX C:**

FIRE CONTROL PLAN
FOR THE PROPOSED BIRCH CREEK PIPELINE PROJECT

**FIRE CONTROL PLAN**
**FOR THE**
**BIRCH CREEK PIPELINE PROJECT**

The purpose of the Fire Control Plan is to aid in the prevention and suppression of any fire which may occur during pipeline construction. All personnel affiliated with the project should be familiar with the plan.

Questar Pipeline (Questar) will notify BLM's authorized officer (AO) of any fires during the construction of the pipeline. Questar will comply with all rules and regulations administered by the AO concerning the use, prevention, and suppression of fires on federal lands.

Questar or its contractor will take the initial fire suppression action in the work area. Suppression actions will continue until the fire is out or until the crew is relieved by an authorized representative of the agency on whose land the fire occurs. Heavy equipment is not to be used for fire suppression outside the limits of the right-of-way without prior approval of the AO unless there is imminent danger to life or property. Questar or its contractor will be responsible for all costs associated with the suppression and rehabilitation if the fire started as a result of Questar or its contractors' activities in conjunction with the construction of the pipeline.

A. EQUIPMENT

Each construction crew will have fire tools available. Fire fighting equipment will include extinguishers, shovels, and axes. The number of tools needed will depend on the number of men working in the area.



B. FIRE PREVENTION

All welding or use of acetylene torches will be done in an area which has been cleared of flammable material. Each welder will be provided with a helper to overlook the work and extinguish any flame started by a hot welding spark. Each helper will be equipped with a fire extinguisher and a shove.

Gasoline, oil, and lubricants will be transported in approved containers in accordance whit the National Fire Protection Association Code.

Internal combustion engines will be equipped with a spark arrestor unless it is:

- Equipped with turbine-driven exhaust supercharger;
- A multi-position engine, such as on chainsaws, which must operate in accordance with applicable codes;
- A passenger vehicle or light truck equipped with a factory designed muffler and exhaust system in good working condition; or
- A heavy truck or other vehicle used for heavy hauling, equipped with a factory designed muffler and with a vertical stack exhaust system extended above the cab.

C. RESPONSE TO FIRES

Questar and its contractor will practice fire prevention techniques at all times during construction of the pipeline. Any fire will be immediately reported to the appropriate agency or fire control department.

**APPENDIX D:**

LETTER FROM BOB RENNELLS,
OREGON - CALIFORNIA TRAILS ASSOCIATION,
APRIL 27, 1994



**OREGON-CALIFORNIA TRAILS ASSOCIATION**
524 South Osage St. / P.O. Box 1019 / Independence, MO 64051-0519
FAX and Phone: (816) 252-2276



La Barge, Wy.
April 27, 1994

Mr. Bill Le Barron, District Manager.
Bureau of Land Management
Green river Resource Area
1993 Dewar Drive.
Rock Springs, Wy. 82901

Dear Mr. Le Barron, 1792 (420)
Birch Creek

Regarding the Questar Pipeline request to construct a pipeline known as "Birch Creek" in Lincoln, and Sweetwater Counties I would like to make the following comments.

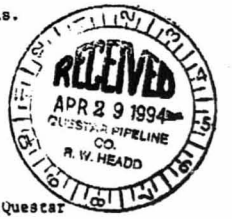
On April 20th, 1994 I met with the Questar Pipeline representatives to go over their proposed route and possible Historic Trail impacts along the route.

I did not find any impacts to the Trails along the staked proposed route. I would recommend construction as they have it staked. I have also spoken to Mr. Tom Hunt, our National Preservation Officer, regarding this field review and he concurs. I am acting as Mr. Hunts representative in this matter.

Those present are as follows; Questar, Mike Legerski, Senior Field Engineer
Tim Blackham, Dir. Property & R.W.
William Robbins, Appraiser

OCTA. Bob Rennells
Karen Rennells.

Sincerely;
Bob Rennells
Bob Rennells.OCTA.




CC. Mr. Tom Hunt National Preservation Officer.
Mr. Rex W. Headd, Supervisor & Design Engineering, Questar
Mr. Mike Legerski, Senior Field Engineer, Questar.
Mr. Tim Blackham, Questar.
Mr. William Robbins, Questar.

**APPENDIX E:**

CONSULTATION WITH
U.S. FISH AND WILDLIFE SERVICE



United States Department of the Interior
FISH AND WILDLIFE SERVICE

Ecological Services
4000 Morrie Avenue
Cheyenne, Wyoming 82001

Rec. 4/11
RAS

IN REPLY REFER TO:

ES-61411
mlj/W.02(birtchck.scp)

April 5, 1994

Mr. Roger Schoumacher
Mariah Associates, Inc.
605 Skyline Drive
Laramie, Wyoming 82070-8909

Dear Mr. Schoumacher:

This responds to your March 23 request for listed and candidate species and the Bureau of Land Management's (Bureau) scoping statement received by this office on March 16, 1994, regarding possible impacts of Questar Pipeline Company's proposed Birch Creek gathering lateral pipeline system on listed and candidate species. I have concerns with the following issues, and request that they receive full treatment in the analysis of this project.

**1. Wetland Impacts:** I am concerned that wetlands may be impacted by the proposed project. In meeting its responsibilities for wetland protection and conservation, the Bureau must assure that proposed activities do not result in the taking of any Federal trust wildlife resources nor lead to the contamination of other water sources. Action should be taken to avoid or mitigate any wetland losses in accordance with section 404 of the Clean Water Act, the Fish and Wildlife Coordination Act, Executive Order 11990 (wetland protection) and Executive Order 11988 (floodplain management). If wetlands may be impacted by the proposed action, those wetlands in the project area should be inventoried and fully described in terms of functions and values. Acreage of wetlands, by type, should be disclosed and specific actions outlined to avoid, minimize, and compensate for unavoidable wetland impacts.

This office recommends that Bureau request assistance from the U.S. Army Corps of Engineers to determine whether a section 404 Clean Water Act permit will be required for the proposed work. Under section 404(b)(1) guidelines of the Clean Water Act, the analysis should describe alternative actions which avoid, minimize, and compensate for unavoidable wetland impacts. The Fish and Wildlife Service (Service) will participate in review of any application for a section 404 permit. I advise early consultation with the Service and other appropriate agencies on wetland matters. If wetlands are involved but the Corps determines that an individual permit is not required, you should ensure that the intent of section 404 of the Clean Water Act is met. Wetland issues should be disclosed and addressed in the analysis even if a section 404 permit is not required.

**2. Endangered Species:** In accordance with section 7(c) of the Endangered Species Act of 1973, as amended (ESA), the following threatened or endangered (T/E) species may be present in the project area.

| Species | Status | Expected Occurrence |
|---|---|---|
| Black-footed ferret (Mustela nigripes) | Endangered | Potential resident in prairie dog (Cynomys sp.) colonies. |
| Bald eagle (Haliaeetus leucocephalus) | Endangered | Nesting site near proposed pipeline. Winter resident. Migrant. |
| Peregrine falcon (Falco peregrinus) | Endangered | Migrant. |
| Whooping crane (Grus americana) | Endangered | Migrant. |

If the proposed action will lead to water depletion (consumption) in the Colorado River System, you should include the following species in your evaluation:

| | | |
|---|---|---|
| Colorado squawfish (Ptychocheilus lucius) | Endangered | Downstream resident of Green River System. |
| Humpback chub (Gila cypha) | Endangered | " |
| Bonytail Chub (Gila elegans) | Endangered | " |
| Razorback sucker (Xyrauchen texanus) | Endangered | " |

**Candidate** species that may occur within the project area are identified below. Many Federal agencies have policies to protect candidate species from further population declines. I would appreciate receiving any information available on the status of these species in or near the project area.

| Candidate Species | Category* | Expected Occurrence |
|---|---|---|
| **Birds** | | |
| Ferruginous hawk Buteo regalis | 2 | Grasslands statewide |
| Mountain plover Charadrius montanus | 1 | Grasslands statewide |
| Long-billed curlew Numenius americanus | 3C | Grasslands/wetlands |
| Loggerhead shrike Lanius ludovicianus | 2 | Woodlands/shrublands statewide |





| | | |
|---|---|---|
| **Fish** | | |
| Flannelmouth sucker Catostomus latipinnis | 2 | Green & Little Snake Rivers and tributaries |
| Roundtail chub Gila robusta | 2 | Green & Little Snake Rivers and drainages |

*1 = Federal T/E listing appears appropriate and is anticipated. 2 = Current data insufficient to support listing. 3C = More widespread or abundant than previously believed, or no immediate threats identified.

Section 7(c) of ESA requires that Federal agencies proposing major construction actions complete a biological assessment to determine the effects of the proposed actions on listed and proposed species. If a biological assessment is not required (i.e., all other actions), the lead agency is responsible for review of proposed activities to determine whether listed species will be affected. I would appreciate the opportunity to review your determination document.

For those actions where a biological assessment is necessary, it should be completed within 180 days of initiation, but can be extended by mutual agreement between your agency and the Fish and Wildlife Service. If the assessment is not initiated within 90 days, the list of T/E species should be verified with this office prior to initiation of the assessment. The biological assessment may be undertaken as part of the agency's compliance of section 102 of the National Environmental Policy Act (NEPA), and incorporated into the NEPA documents. The Service recommends that biological assessments include:

1. a description of the project;
2. a description of the specific area potentially affected by the action;
3. the current status, habitat use, and behavior of T/E species in the project area;
4. discussion of the methods used to determine the information in item 3;
5. direct and indirect impacts of the project to T/E species;
6. an analysis of the effects of the action on listed and proposed species and their habitats including cumulative impacts from Federal, State, or private projects in the area;
7. coordination measures that will reduce/eliminate adverse impacts to T/E species;
8. the expected status of T/E species in the future (short and long term) during and after project completion;
9. determination of "is likely to adversely affect" or "is not likely to adversely affect" for listed species;
10. determination of "is likely to jeopardize" or "is not likely to jeopardize" for proposed species;
11. citation of literature and personal contacts used in assessment.

If it is determined that any agency program or project "is likely to adversely affect" any listed species, formal consultation should be initiated with this office. If it is concluded that

the project "is not likely to adversely affect" listed species, I should be asked to review the assessment and concur with the determination of no adverse effect.

A Federal agency may designate a non-Federal representative to conduct informal consultation or prepare biological assessments. However, the ultimate responsibility for section 7 compliance remains with the Federal agency, and written notice should be provided to the Service upon such a designation. I recommend that Federal agencies provide their non-Federal representatives with proper guidance and oversight during preparation of biological assessments and evaluation of potential impacts to listed species.

Section 7(d) of ESA requires that the Federal agency and permit or license applicant shall not make any irreversible or irretrievable commitment of resources which would preclude the formulation of reasonable and prudent alternatives until consultation on listed species is completed.

**3. Water Quality/Habitat Quality:** I am concerned with water quality impacts of the proposed project, particularly with respect to their effects on fisheries, migratory birds, and Federally listed threatened or endangered species. The analysis should describe project activities that may affect water quality or that have the potential to expose fish and wildlife to hazardous substances. Such activities may include, but are not limited to: wastewater discharges, transportation of hazardous materials, spills, and evaporation ponds. Since selenium is a commonly detected trace element in Wyoming and has been detected in varying concentrations in ground and surface waters and soils, the analysis should assess, if appropriate, the project's potential to mobilize selenium and cause bioaccumulation in the food chain.

**4. Fish and Wildlife:** Short-term and long-term impacts of the proposed project on fish and wildlife and their habitats should be given full treatment in the analysis. In addition to assessing impacts to T/E and candidate species, the analysis should address impacts to nesting raptors and other migratory birds.

These preliminary scoping comments are made pursuant to the National Environmental Policy Act, the Endangered Species Act and Fish and Wildlife Coordination Act. Please keep this office informed of any developments or decisions concerning this project. If you have any questions, please contact me or Mike Jennings of my staff at the letterhead address or phone (307)772-2374.

Sincerely,

Charles P. Davis
Field Supervisor
Wyoming State Office





cc: Teresa Deakins, BLM, Rock Springs, WY
Director, WGFD, Cheyenne, WY
Nongame Coordinator, WGFD, Lander, WY